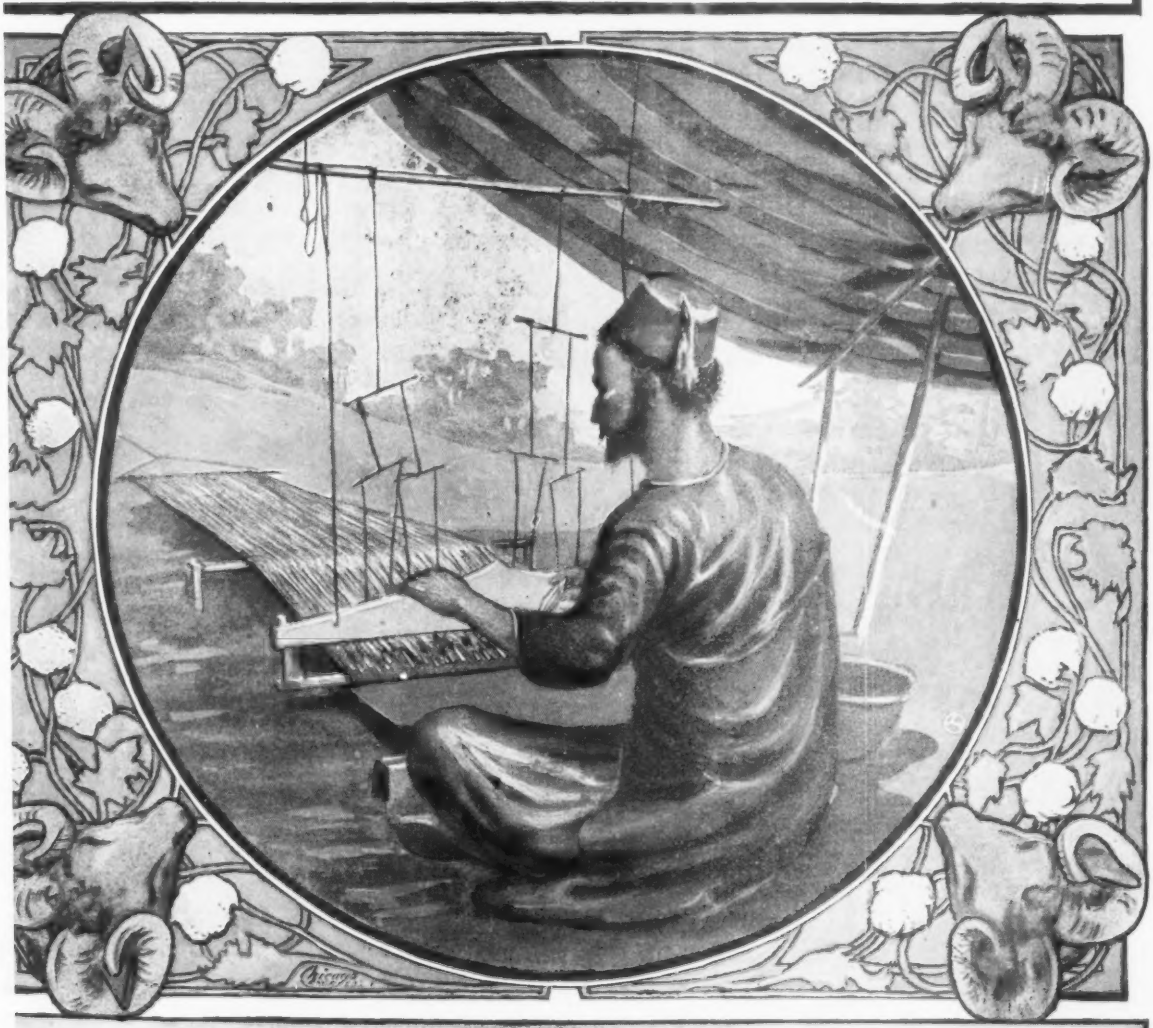
olume XXXVII.
mber 1.

APRIL, 1909.

$2.00 per year.
$3.00 with Directory.

APR 16 1909
PERIODICAL

TEXTILE WORLD RECORD



LORD & NAGLE COMPANY ~ BOSTON · MASS.

ble of Contents, Page 65. Buyers Index, Page 187. Index to Advertisements, Page 197.

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The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST.

PROVIDENCE, R. I.

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers.

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines.

Dyeing Machines for Chain Warps.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING

DYEING

DRYING

AND

FINISHING

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

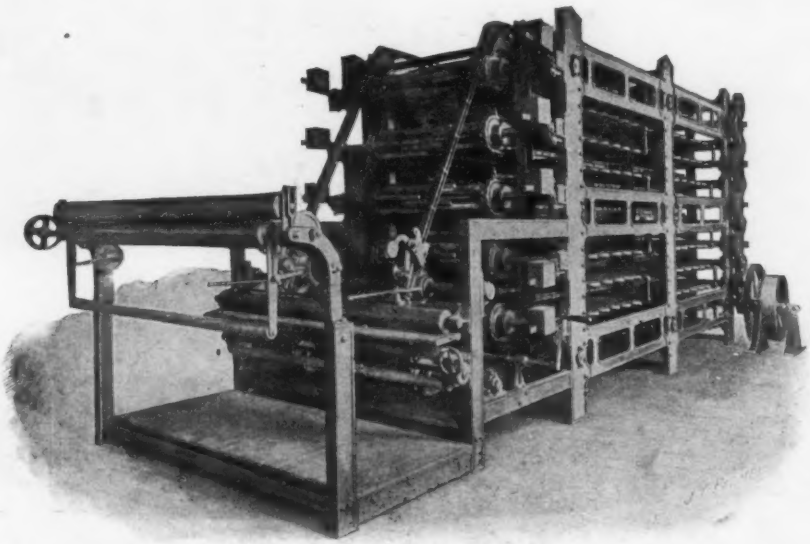
Estimates, Drawings and full particulars of complete plants furnished on application

Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA

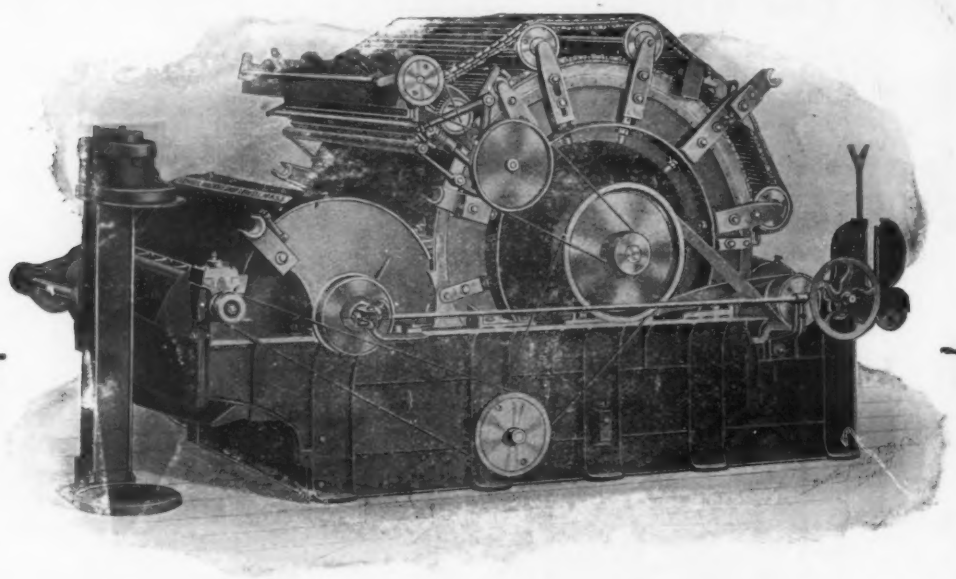
Providence, Room 417, Industrial Trust Building.



Return Tentering Machine - Low-down Platform, for Woolen and Worsted Goods.

Bleaching, Dyeing Drying and Finishing Machinery

for all kinds of textile fabrics.



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.

Results Count

The Cordis Mills of Millbury, Mass, weaving ticks, **replaced 212 common looms** which were operated by 52 weavers **with 204 Northrop Looms** which are operated by only **13** weavers and are **producing more and better cloth.**

ARE YOU DOING AS WELL?
IF NOT, WHY NOT?

152,859

NORTHROP LOOMS

IN THE UNITED STATES

INCLUDING ORDERS TO JANUARY 1, 1909

DRAPER COMPANY

Hopedale, Mass.

J. D. CLOUDMAN, Southern Agent
40 So. Forsyth St., Atlanta, Ga.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

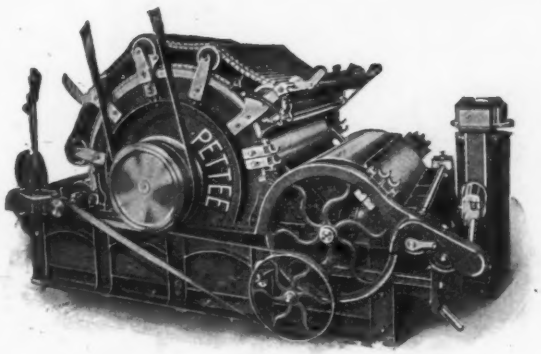
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

Shops—

Biddeford, Me.

Newton Upper Falls, Mass.

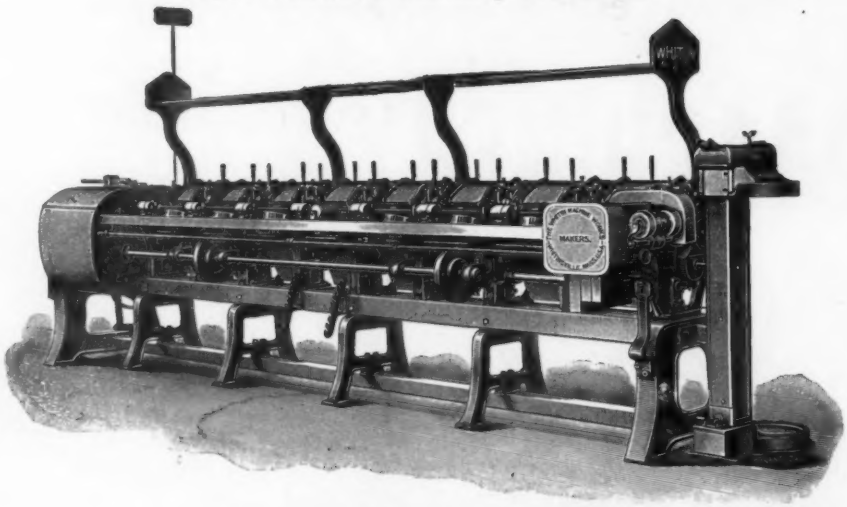
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

BUILDERS OF

Full Particulars, Samples and Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

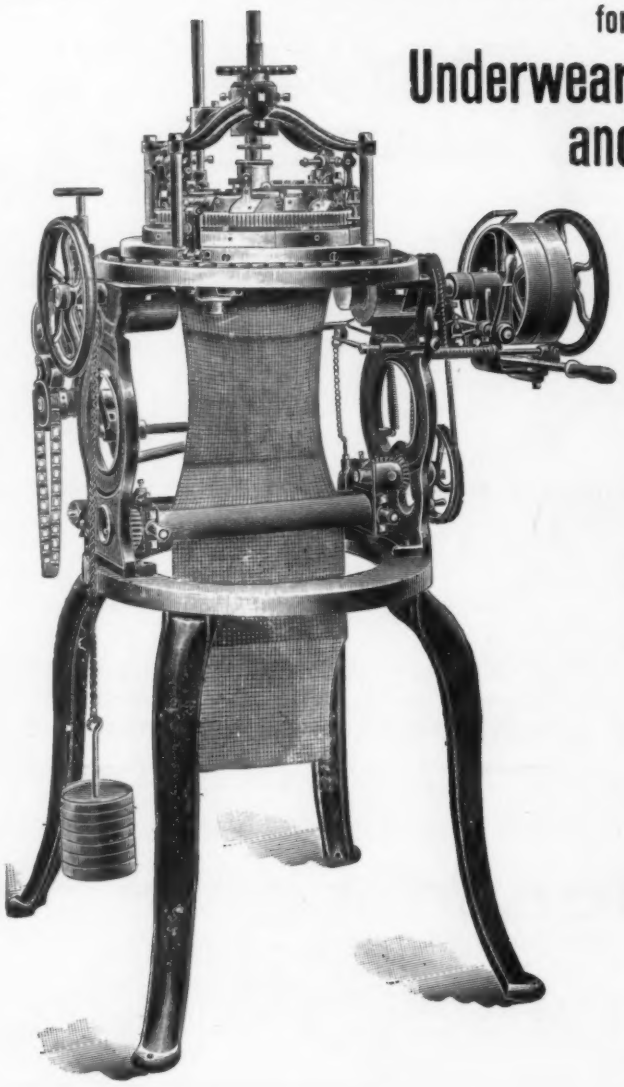
Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.



The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.

Dry Air vs. Moist Air

VENTILATION

It is not a question of whether or not the mill is to be ventilated but, HOW it will be ventilated.

Practically all mills during hot weather open the windows to procure natural ventilation to assist in cooling their mills. This air is dry and at the outside temperature.

WITH THE CARRIER SYSTEM all the air for ventilating enters the building through the humidifier. This air is moistened to saturation and on very hot days leaves the humidifier from 14 to 18° BELOW the outside temperature.

Which Does the Most Cooling?

Which Does the Most Humidifying?

DRY AIR VENTILATION through the windows brings in dirt and dust, creates draughts that break the yarns and the quantity, being dependent upon atmospheric conditions, is not easily controlled.

MOIST AIR VENTILATION by the Carrier System thoroughly cleanses the air, produces no draughts and the quantity is controlled at the will of the operator.

Carrier Air Conditioning Co.

OF AMERICA

39 Cortlandt Street, New York

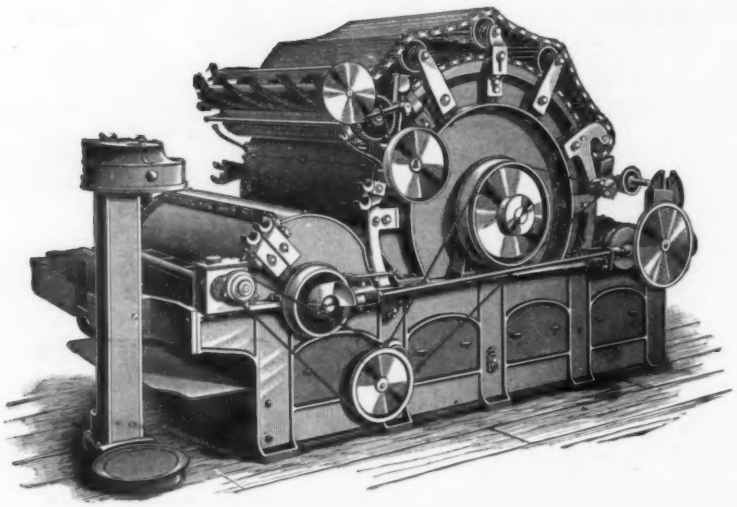
104-C

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

High speed, self-oiling winders for coning, tubing, doubling. Also for cotton, silk, woolen and worsted filling for weaving.
Universal Winding Company, Boston
Sole Manufacturers of
"UNIVERSAL" WINDING MACHINERY
Several styles of machines of heavy construction for thread, twine and cords.

IMPORTANT ANNOUNCEMENT

Manufacturers are hereby warned against using infringements upon the Cramer patents for

Automatic Regulators for Humidifying Systems

Before considering the purchase of infringing devices, make sure that the vendor is amply financially responsible and guarantees to imdemnify the purchaser against loss by damage suits, for both infringers and users of infringements, however crude such infringements may be, will be prosecuted to the full extent of the law.

Don't be imposed upon by misleading terms and claims as to what the vendor's patents cover; anyone can get a patent for almost anything in the way of specific constructions; the vital question is whether or not such patents infringe other prior patents.

Cramer System of Air Conditioning

Spray Humidifiers as good as the best, of large capacity, durable, sanitary, air cleansing and efficient.

Air Conditioners *comprising all the good points of spray humidifiers*, particularly as to large moistening capacity and simplicity; *combined with the good points of evaporation types of humidifiers*, such as complete evaporation of the moisture, large air cleansing capacity and good distribution; *and without the objectionable features of either type*, such as wetting down, localized moistening, large and clumsy constructions, unsanitary conditions due to difficulty of access for cleaning and to the use of wet absorbent disease-breeding materials, and largely reduced efficiencies at all except the lowest humidities,—*features*, simplicity, durability comprising only seamless drawn sheet copper casings, a spray nozzle and a fan. The fans are either electrical driven, or mechanically driven with belts or ropes as the special requirements of each case dictate.

STUART W. CRAMER

Providence, R. I. **Charlotte, N. C.** **Atlanta, Ga.**

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SONS,
Card Clothing for Woolen and Worsted.

WILSON BROS. BOBBIN CO.'S.

Bobbins, Shuttles, etc.

Dronsfield Bros. Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

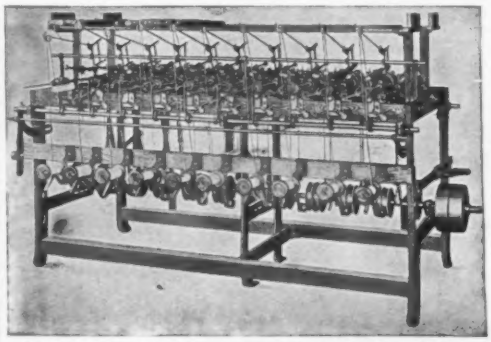
OSWALD LEVER CO.

(Formerly LEVER & GRUNDY.)

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.

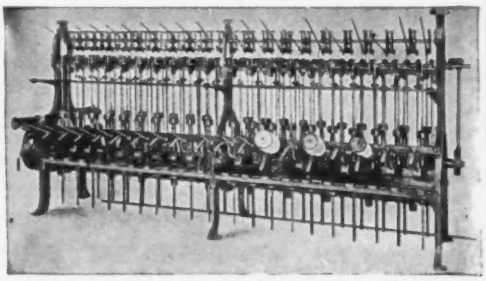
MANUFACTURERS OF TEXTILE MACHINERY.

SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

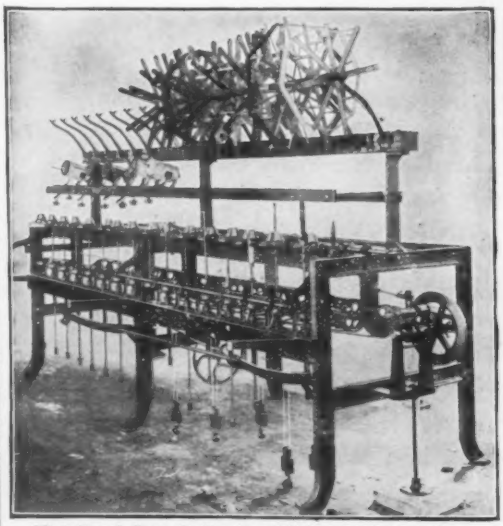


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

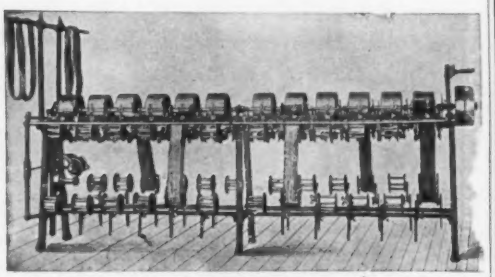
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.



Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton, bagging and carpets.



High Speed Cross Quiller to wind from skeins, spools or mule cops on two quills or paper tubes. It is built to run from 1800 to 2400 revolutions.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

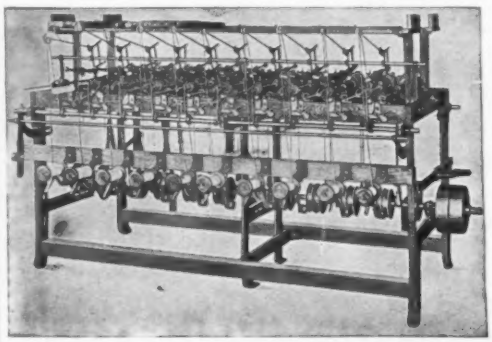
OSWALD LEVER CO.

(Formerly LEVER & GRUNDY.)

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.

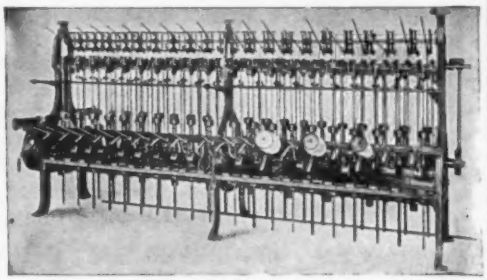
MANUFACTURERS OF TEXTILE MACHINERY.

SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

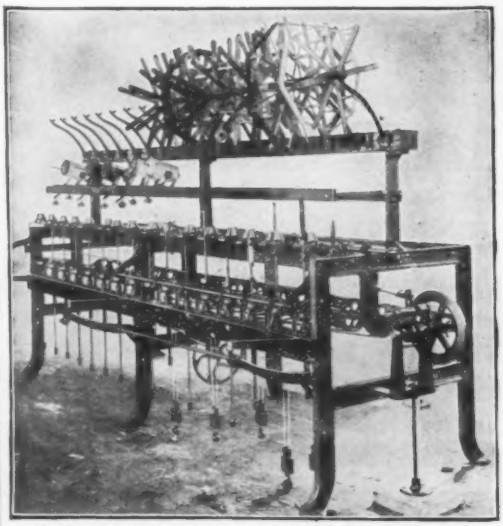


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

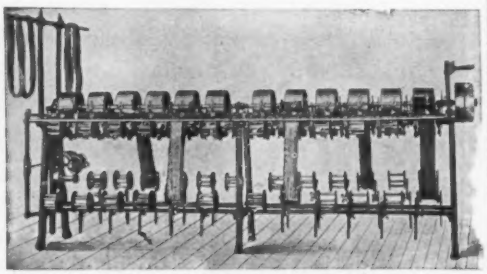
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.



Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton, bagging and carpets.



High Speed Cross Quiller to wind from skeins, spools or mule cops on two quills or paper tubes. It is built to run from 1800 to 2400 revolutions.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

Piece Dye Kettle. *Bulletin 53*

The Hunter PIECE DYE KETTLE

A machine that produces results.

No Shading or Uneven Dyeing.

Tank made of 3" CLEAR CYPRESS.

Tongued and Grooved and thoroughly boltcd.

IMPROVED HUMP REEL

FRICTION PULLEY DRIVE

The heaviest, most substantial dye kettle built.

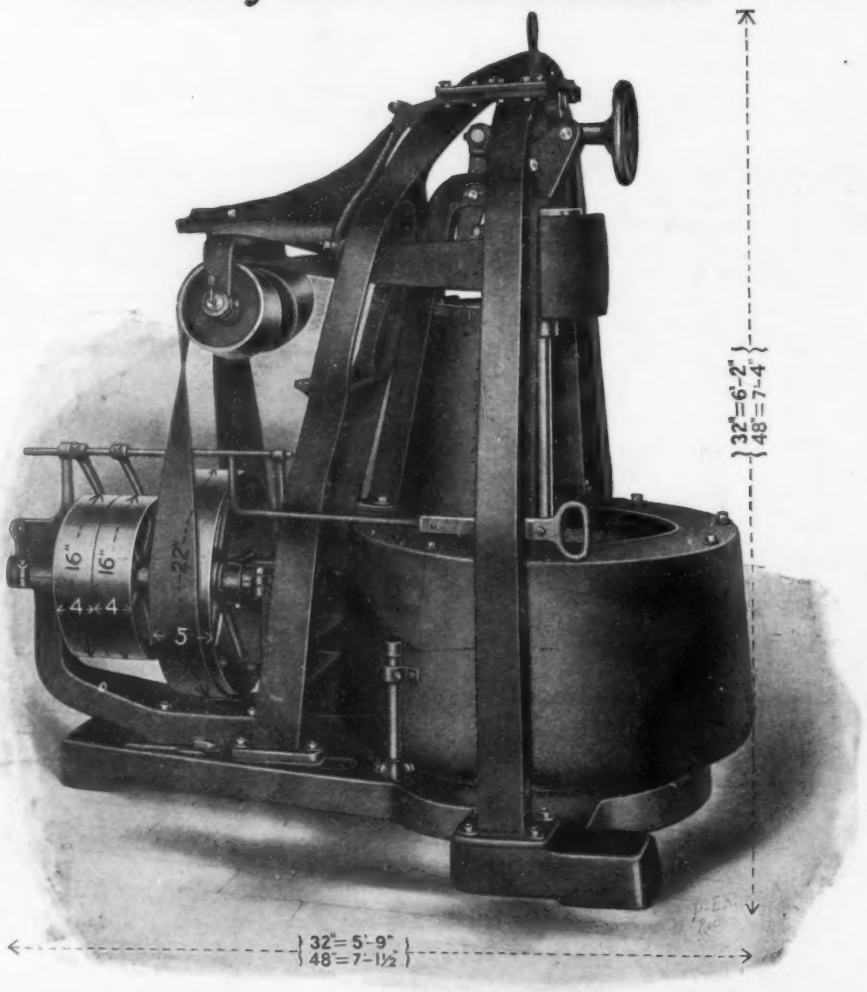
Any size for any number of strings.

Send for Bulletin No. 53.

Open Driven Extractors

FOR

Hosiery and Textile Mills



The American Laundry Machinery Mfg Co

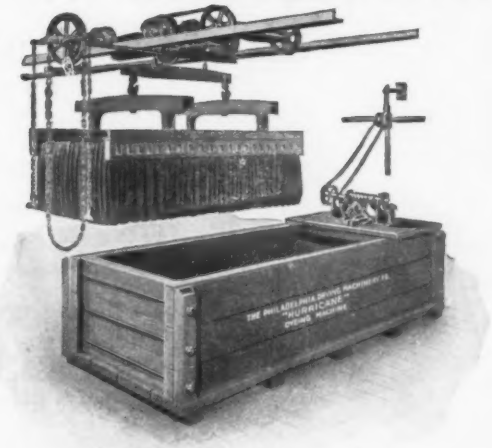
Western Division
78-80 Franklin St.
Chicago

Eastern Division
132-138 W. 27th St.
New York

Southern Division
Station H
Cincinnati

SAVE IN DYEING

75% in Labor
50% " Steam
35% " Dyes



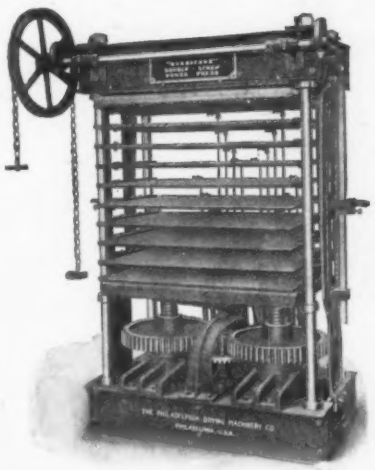
"HURRICANE"
Circulating Dyeing Machines
For Yarn, Hosiery, Etc.

Are in a Class by Themselves.

FOR HOSIERY,

SINGEING

WITHOUT BOARDS,— COSTS LESS THAN HALF



What you have paid heretofore.

THERE'S A REASON

FOR USING

"Hurricane" Automatic Singeing Machines

Power Screw and Hydraulic

PRESSES

For Hot or Cold Finishing, make higher prices possible on account of the better finish of the goods.

THE PHILADELPHIA DRYING MACHINERY COMPANY

"Hurricane" Dyeing, Drying and Finishing Machinery

Complete Equipments for Scouring, Bleaching, Carbonizing, Etc.

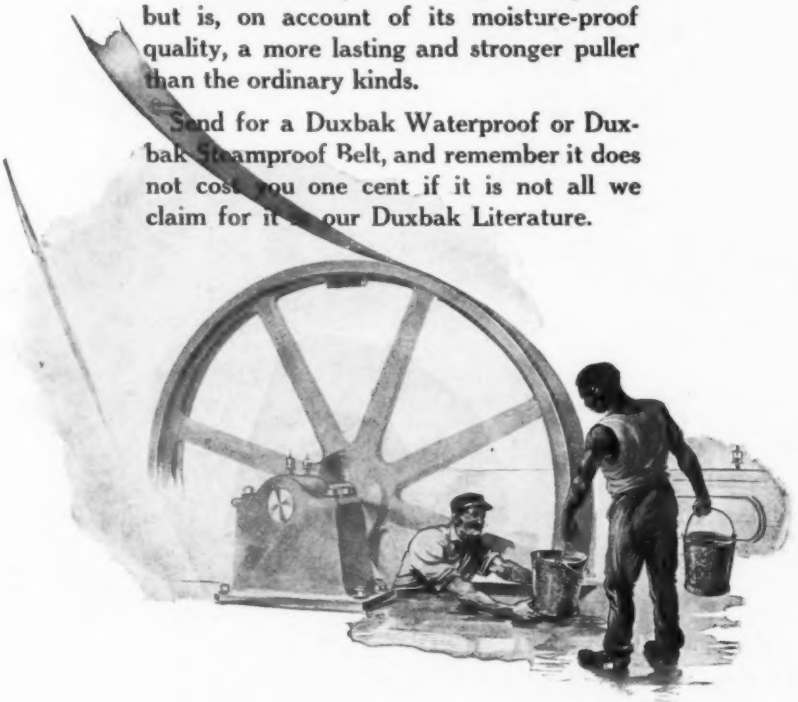
6721 Germantown Ave., Philadelphia, Pa.

A Flooded Wheel Pit can do no harm if your driving belt is a "Duxbak".

This is only one of the many cases that make it necessary to use Duxbak Waterproof Leather Belting, as you never know what may happen over night.

Duxbak Belting is not only waterproof, but is, on account of its moisture-proof quality, a more lasting and stronger puller than the ordinary kinds.

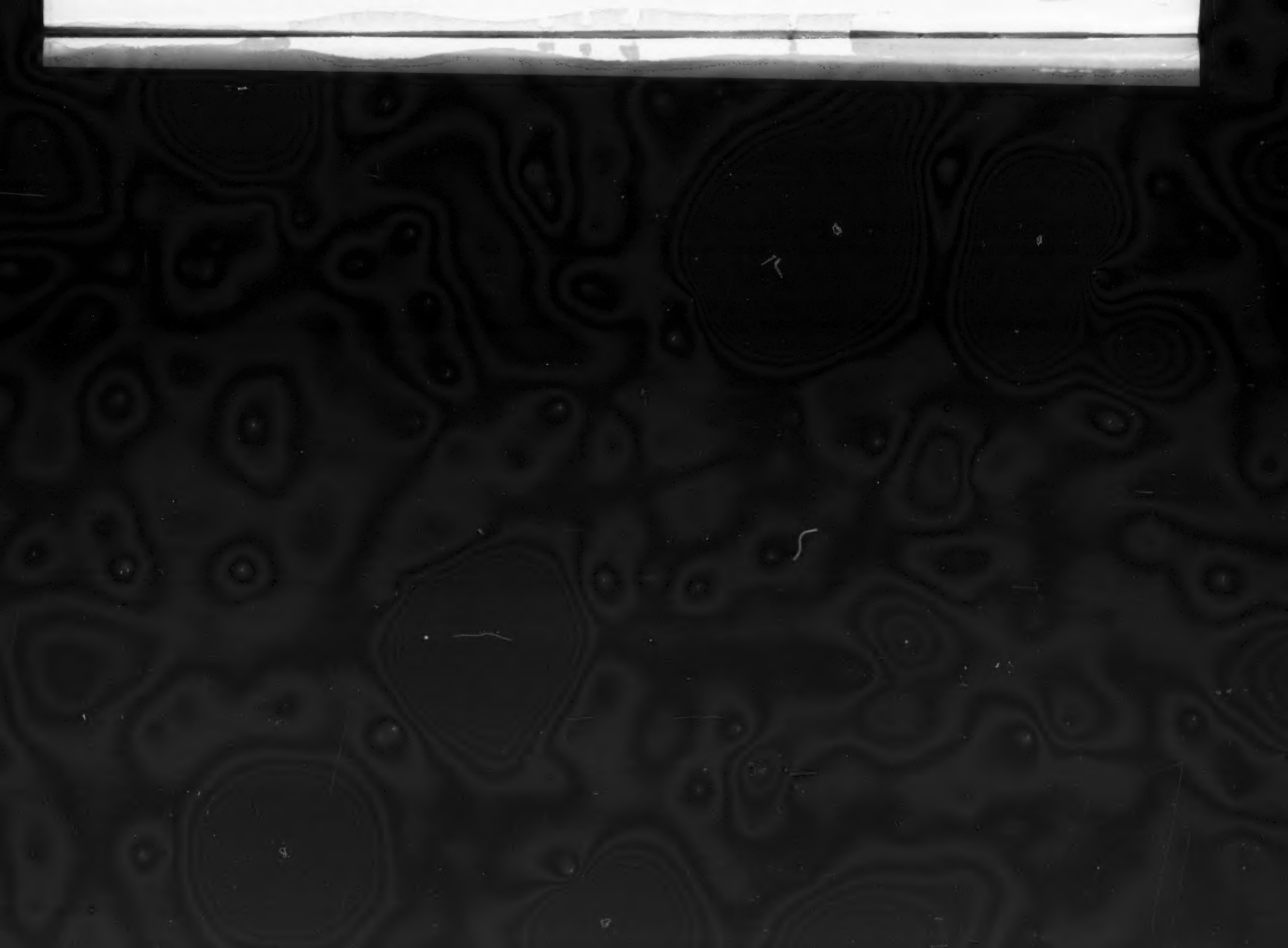
Send for a Duxbak Waterproof or Duxbak Steamproof Belt, and remember it does not cost you one cent if it is not all we claim for it in our Duxbak Literature.



Chas. A. Schieren Company
ESTABLISHED 1868

TANNERS
BELT MANUFACTURERS

NEW YORK, 30-38 Ferry St.
PHILADELPHIA, 226 North 3d St.
CHICAGO, 84-86-88 Franklin St.
BOSTON, 641 and 643 Atlantic Ave., opp. South Station.
PITTSBURG, 240 Third Ave.
DENVER, 1622 Wazee St.
BROOKLYN, N.Y., cor. 13th St. and 3d Ave.
HAMBURG, GERMANY, Auf dem Sande 1.
OAK LEATHER TANNERIES, Bristol, Tenn.



Whaleback Sewing Machine

This machine embodies a most important improvement in piece end sewing machines. All guide pins are set in a link chain which overcomes the trouble incidental to a solid ring. The chain is much easier than a solid ring to run and keeps in repair better.

Another feature which should recommend it to all is the fact that the pin chain is long enough to allow fastening the full width of the cloth at once, which saves handling, therefore time and labor, thus not only is the space available greatly increased but the duties of the operator are more easily carried out.

New Piece End Sewing Machine

This make of machine has some very great improvements over similar machines of other makes.

The guide pins (as in the above machine) are mounted on a link chain instead of a metal disk which allows of ease and accuracy of operation and also obviates the necessity of removing cloth from pins. This saves time and labor and insures more and better work.

The needle motion is covered in, which keeps it clean, insuring freedom of motion and it also adds strength to that part of the machine.

Thos. Leyland & Co.

F. T. WALSH, Manager

60 India Street, BOSTON, MASS.

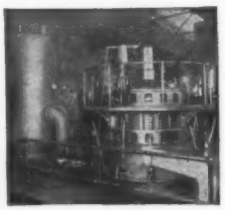
Sole Agents for United States and Canada Under

The William Mycock Patents

General Electric Company

Textile Mill Economics

Exhaust Steam Turbines—



in the power house afford a highly efficient means of utilizing the exhaust steam from reciprocating engines. Curtis Low Pressure Turbines utilize exhaust steam from 1 pound gauge pressure to any obtainable vacuum, and will add from 30 to 100 per cent to the station output without using additional fuel. These turbines are available in standard sizes from 300 kilowatts up and possess the same characteristics of operation that have made the Curtis Steam Turbine the peerless prime mover.

Induction Motors—

in the mill result in reduced operating and maintenance costs, besides increasing the output and quality of the product. Reduced building expenses and increased working space also follow as direct results of the adoption of electric drive. This is due to the elimination of heavy and bulky line shafting and the consequent lighter construction materials required. Of the total power supplied through electric motors to textile mills in this country, 75 per cent. is delivered by G. E. motors. There's a reason.

Tungsten Lamps—

in every part of the mill will give you the same amount of illumination as ordinary incandescent lamps, but will use only one-third as much current. If you want to get more light without increasing your light bill, or if you want to relieve your overloaded lighting plant, G. E. Tungstens will help you. Furthermore, the quality of the light given by G. E. Tungstens is almost equal to daylight—the ideal light for textile mills. These are good points to remember when you are considering the lighting question.

Mill Power Dept.
84 State St.
BOSTON, MASS.

Principal Office:
SCHENECTADY, N. Y.

Sales Offices in All Large Cities

1994

American Textile Specialty Machinery Co.

670 Eddy St., Providence, R. I.

MANUFACTURERS OF

SHUTTLES AND SHUTTLE IRONS

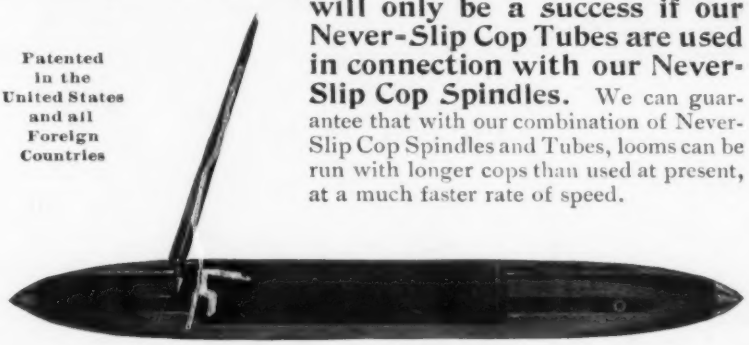
FOR ALL TEXTILE PURPOSES

Never-Slip Cop Tube

Patent applied for.

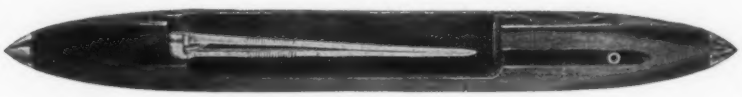
Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.

Patented in the United States and all Foreign Countries



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending



Shuttle with Spindle Lowered

U. S. Patents; 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

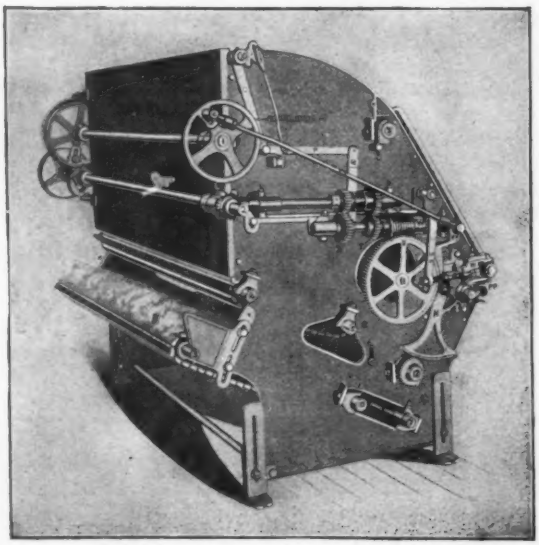
We also manufacture a complete line of

Paper Cop Tubes, Cones and Shells

Send your samples and we will quote prices on any lot desired

New York Office, 363-373 Rider Ave.

THE FISHER PATENT CARD FEED



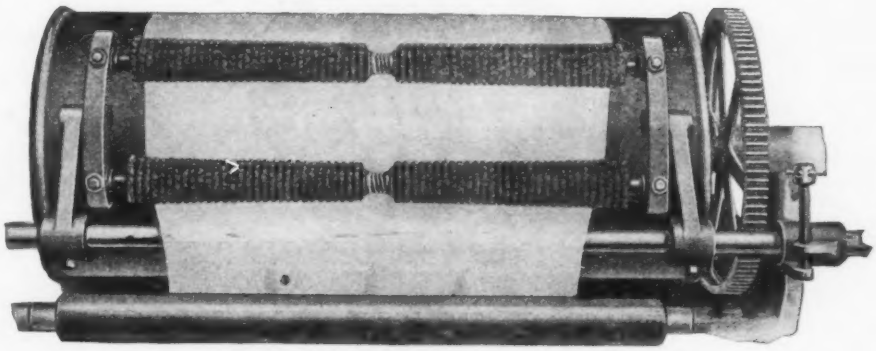
Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

New Bristle Cloth Stretcher

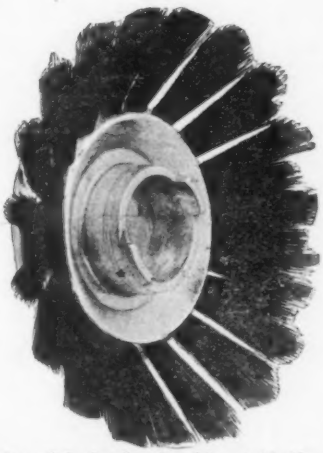
(PATENTED)



THE NEW PRINCIPLE FOR CLOTH STRETCHING.

Prevents Wrinkles in Silk Printing

(Never successfully accomplished before except by hand.)



One of the brush units with metal holder not affected by heat or moisture.

Equally Efficient on and Adjustable to all Fabrics.
Any Degree of Stretch May be Obtained.
Stretches Starched or Unstarched Goods.
Prepares Cloth to Take Rubber Better.
Smoothes and Stretches Cloth Before Calanders.
May Be Applied to any Part of the Cans.
Stretches from the Centre Toward the Selvedge.
Indestructible Brush Holders.
Gets the Full Width of the Goods.
No Threading Up of Machine Required.
No Injury to Employees Possible.
Adds a Superior Finish to the Goods.
Sold on Approval.

American Finishing Machinery Co.,

45 Milk Street, Boston, Mass.

4 Cannon Street, Manchester, England.

Globe Cotton Softener

is a pure soluble product made from vegetable oil which replaces TALLOW and other substances as a softener and lubricant in the sizing, dyeing, finishing and bleaching of cotton yarns, fabrics, knit goods, etc.

Globe Cotton Softener modifies the stiffness and harshness due to the materials used in the various process.

When used by itself for softening, "oiling" or "greening" bleached and dyed goods, yarns or **knit** goods gives a full mellow feel and brightens the colors **without** greasiness.

Corn Products Refining Co., New York

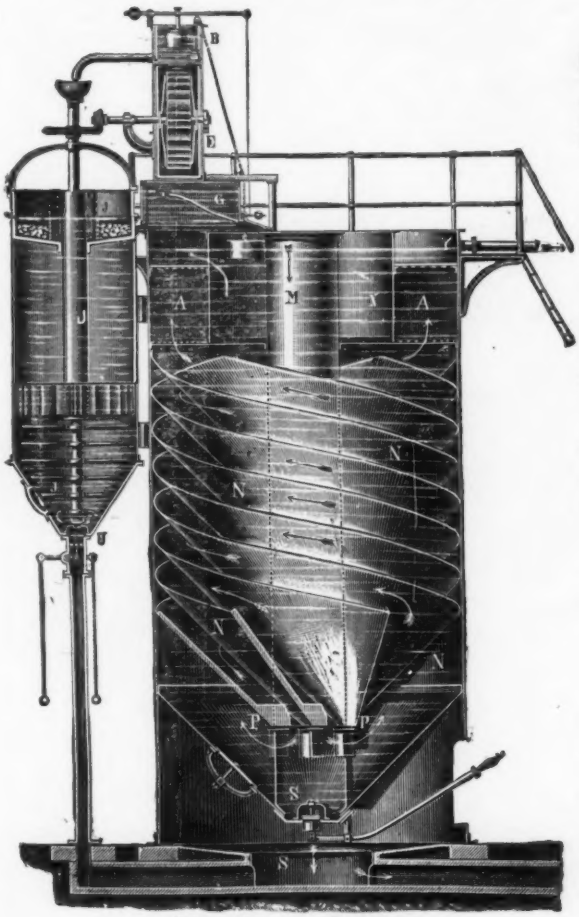
OVER A MILLION GALLONS

Of Our

ARTIFICIALLY SOFTENED WATER

Are used Daily in the Textile Trades, for

Scouring Dyeing Washing Bleaching
Finishing Blueing Rinsing Laundering



Automatic - - - Continuous
Simple - - - Compact

OUR customers, therefore, are on an equal footing with those manufacturers who have naturally soft water, and who accordingly are able to produce superior grades of goods, and at less cost, than any user of hard water possibly can.

With the Dodge Automatic Eureka Water Softener and Purifier You are insured against:

1. Lime lakes in dyeing.
2. Uneven shading.
3. Unsatisfactory colors or shading, due to suspended or dissolved impurities (including iron compounds) in the water.
4. Soap and alkali waste.
5. Excessive consumption of dyestuffs.
6. Imperfect results in bleaching.

Used also for Boiler Feeding. This Same Non-Incrusting Treated Water enables you to:

1. Prevent all scale in boilers, heaters, pipes, etc.
2. Cut out expense for compounds and mechanical cleaners.
3. Eliminate cleaning and repair expense due to scale.
4. Greatly reduce the fuel consumption.
5. Increase the efficiency and life of the boilers.

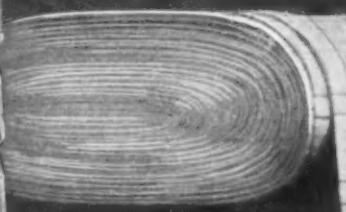
The Eureka System Pays Back its Cost Many Times Over in a Few Years.

It will provide uniform, soft water at all times, regardless of rains and freshets. Settle your vexatious water supply problem now and forever, and stop needless waste. Don't forget to ask for our Bulletin "R" when writing.

DODGE MANUFACTURING COMPANY

Mishawaka, Indiana

COMMUNITY "FRICTION CHAIN" FOR LOOMS



PERFECTS THE WEAVE

Insures even and uniform friction.

Not affected by dampness or dryness.

Will not stretch. Adapted to heavy or light weaving.

Will outwear cord, band or rope many times over.

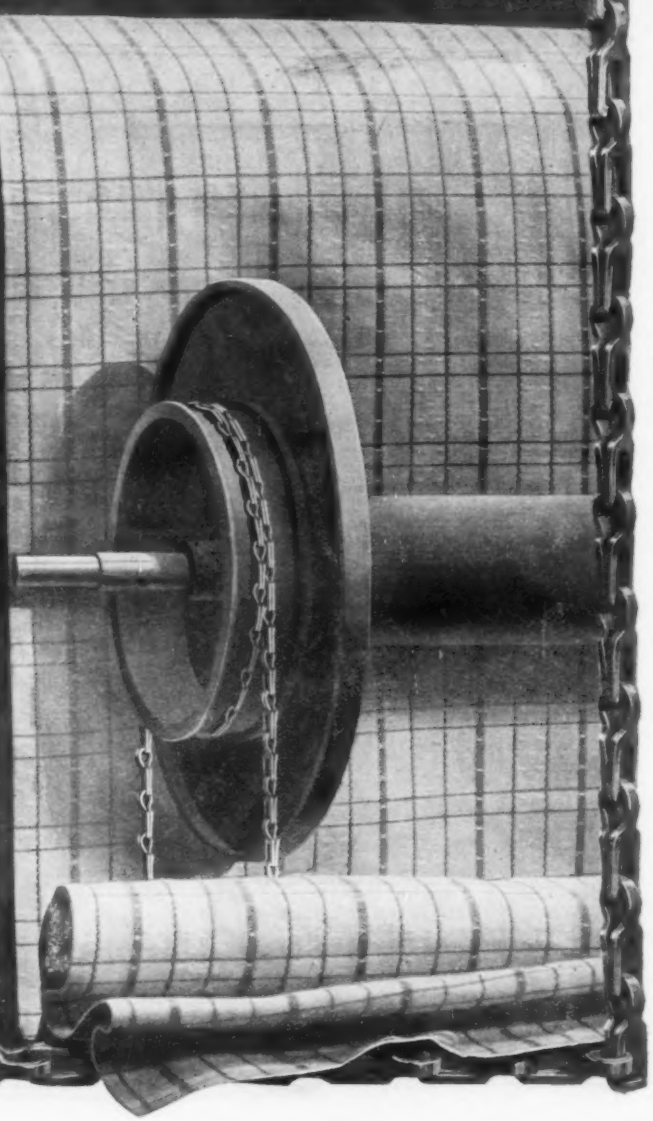
Saves labor.

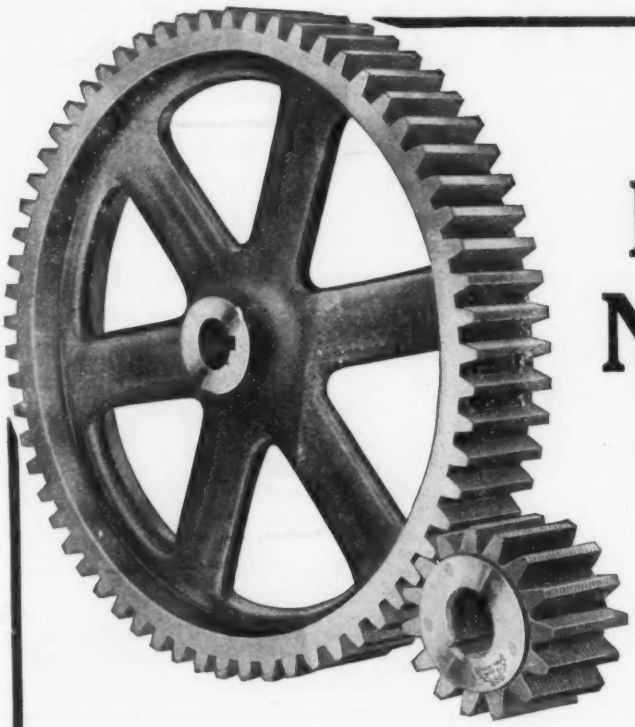
Easily adjusted.

Carried by all the leading supply houses.

We earnestly solicit your orders.

ONEIDA COMMUNITY, Ltd.
ONEIDA, N.Y.





New Process Noiseless Pinions

Make an ideal motor drive.

By their use you secure a noiseless positive drive with no decrease in efficiency. They will wear like iron.

NEW PROCESS PINIONS also reduce objectional vibrations and are therefore, the best for high speed drives.

New Process rawhide is cured by our secret process which makes it different from the ordinary kind.

For twenty years we have been making gears and we stand back of our product with a guarantee as to quality and workmanship.

We make all other kinds of gears as well as rawhide. May we tell you more about them?

Descriptive Catalogue for the asking.

The New Process Raw Hide Company

Syracuse, N. Y.

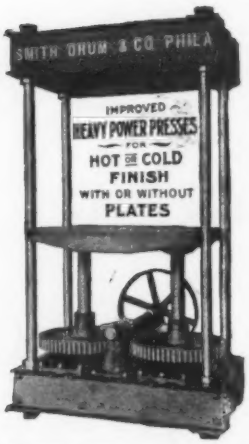
SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES



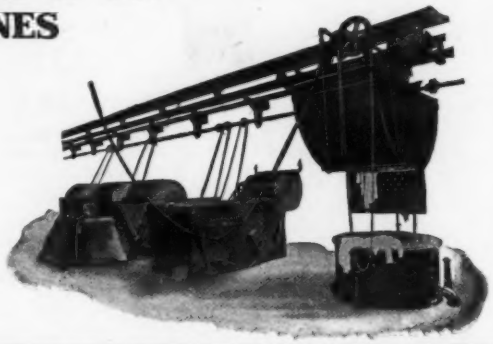
SAVE LABOR and **DYE STUFF** and do **BETTER WORK** in your dye house by using

SMITH, DRUM & CO. MACHINES

Full Particulars on Application

CORAL AND CUMBERLAND STREETS

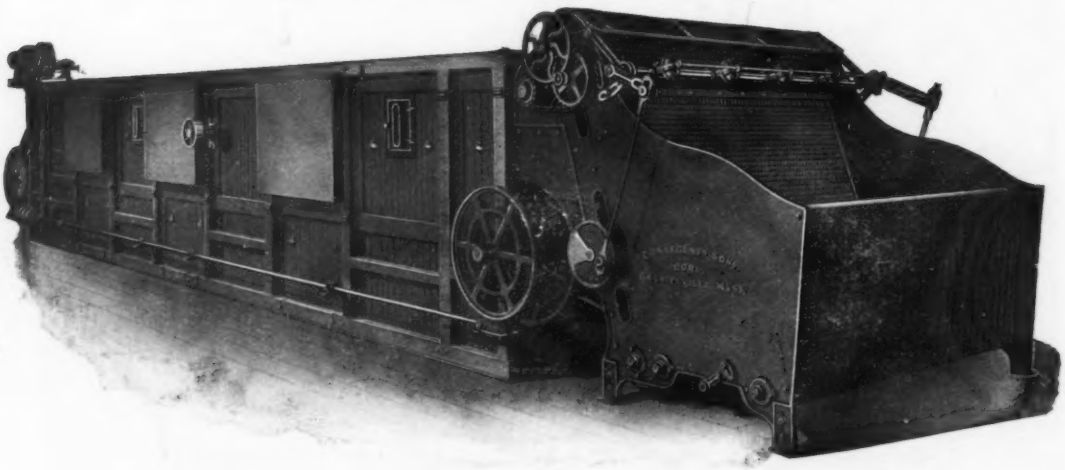
PHILA., PA.



C. G. SARGENT'S SONS

CORPORATION

GRANITEVILLE, MASS.

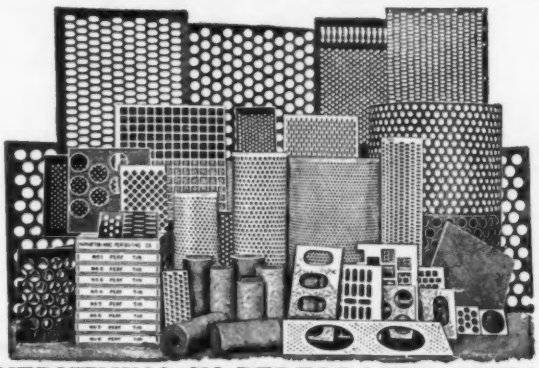


BUILDERS OF

Stock Dryers, Wool Washers, Wool Dusters, Carbonizing Plants, Burr Pickers, Etc.

PERFORATED METALS FOR TEXTILE MILLS

Used in Dye Tubs, Rinse Boxes, Strainer Bottoms, Scouring Tanks, Steam Boxes, Wool Scouring Plates.



Used in Burr Pickers, Grabbing Machines, Dyeing Machines, Extractor Baskets, Steam Finishing Machines.

EVERYTHING IN PERFORATED METAL

Perforated Brass and Copper for Wool Washing Machinery.
Perforated Steel (black or galvanized) for Dusters, Reels, Drying Floors, False Bottoms, Drainers, etc., etc.
ALL SIZES OF STEEL SURFACING.

It has been our business for many years to meet every need in this line and we have both the experience and facilities to do it. As most of this work is made to order send complete specifications.

THE HARRINGTON & KING PERFORATING CO.,
230 North Union Street, CHICAGO

New York Office, 114 Liberty Street.

Cloth Washers, Dye Tubs, Vats, Fulling Mills, Piece Dyeing Machines, Special Machinery, Brass Founders, Tanks, To Order.

Hopkins Machine Works, Inc.

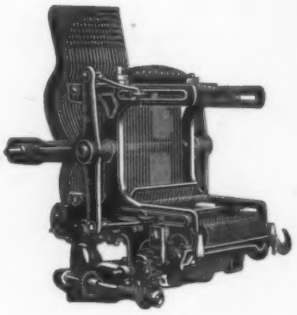
BRIDGETON, R. I.

Providence Office, 49 Westminster St.

Spindles and Flyers, for Cotton, Wool, Silk, Flax, etc.

Send for our latest Catalogue and Price List

Dye Tub Valves, Cloth Guides, etc. Bronze or Porcelain Rings.



C. & K. Dobbies

are best adapted to every requirement — always the leaders in efficiency and economy.

We apply them to any and all makes of looms.

Crompton & Knowles Loom Works

Worcester Providence Philadelphia

LAWSONS

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery for the Manufacture of Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machine.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

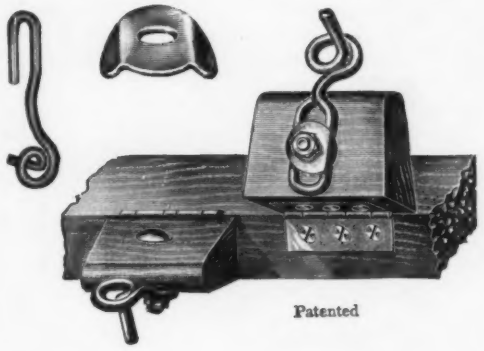
Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

The accompanying illustration shows the **Palmer** adjustable thread guide for spinning and twisting. This guide is **Adjustable** in all directions and can be rigidly and permanently fixed. **Thread** boards and rails of metal which are expensive are not necessary with this **Guide**



Patented

SEND two clappers for free samples for circular.

The Palmer Revolving Guide for Wet and Dry Twisting

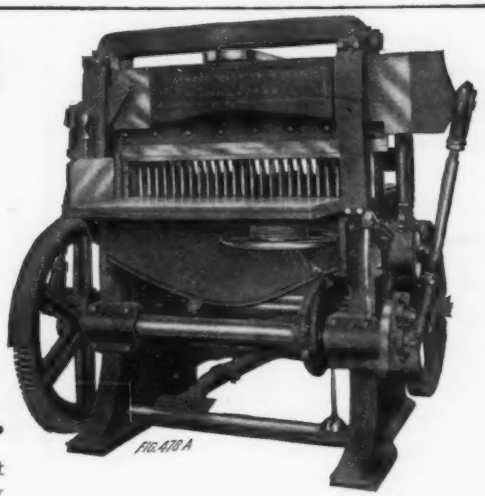
Patented

Lays the fiber closer
Makes a smoother twist
Saves power
Will outwear many wire guides

THE I. E. PALMER CO., Middletown, Conn.

Pinking Cloth and Cutting Samples on Oswego Cutting Machines

is easy, quick, economical and correct.



The attractive samples that can be cut on Oswego Cutters bring business. Ninety sizes and styles of Oswego and Brown & Carver Cutters are made. One of these is exactly suited to your present needs. A large number of these machines are in active operation cutting cloth. **Also Makers of Die Cutting Machinery.**

Oswego Machine Works, Oswego, N. Y.

Niel Gray, Jr., Proprietor.

Harness Skips

EVERY woolen superintendent and boss weaver knows how often imperfect cloth results from a harness skip caused by a jack or harness strap breaking. Some times a yard or more of cloth is woven before the break is detected, especially if the weaver is running more than one loom. That means seconds and allowances.

Our simple and very inexpensive attachment prevents all that. It stops the loom instantly and automatically whenever a jack, harness wire or strap breaks. It is not one of those fussy devices which lumbers up a loom and causes the fixer and weaver a lot of additional trouble.

One of the most up-to-date concerns has had fifty of these devices on their looms for a considerable time and have recently ordered fifty more for another mill. Several of their neighbors having learned how well it works have placed orders.

Send for circular.

Bamford & Smith Company

Providence, R. I.

SPINDLES

EASTON AND BURNHAM MACHINE CO.

PAWTUCKET, R. I.

REPAIRS FOR RABBETH SPINDLES

New Bedford Textile School

Day and Evening Instruction in

Picking,
Carding,
Combing,
Spinning,
Warp Preparation,
Weaving,
Designing,
Knitting,
Chemistry and Dyeing.

CATALOGUE ON APPLICATION.

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Philadelphia Textile School

TWENTY-FOURTH YEAR

Oldest in America
Most Complete in the World

Endorsed by the Leading
Educators and Manufacturers

Cotton, Wool, Worsted and Silk

Instruction given in Designing, Weaving, Carding, Spinning, Chemistry, Dyeing and Finishing

Special Courses in
Textile Chemistry and Dyeing

For illustrated
Year Book and other information, address

E. W. France, Director,
Broad and Pine Streets - - - - - Philadelphia

Pulley Perfection

A perfect Pulley is an Impossibility without a Perfect Crown.

Common Sense and Good Mechanics can produce Good-Points-In-General in Pulleys, but only in the **Phillips Pressed Steel Pulleys** is the Perfect Crown produced. Cold rolled in Perfect Patterns, there is no After-Shrinkage or Distortion. The Belt grasps and pulls every fraction of the Face of

A Phillips

because of the Perfect Crown.

This isn't the only Good Point about Phillips Pulleys—watch this space every issue for the Whole History—or Better Still, send for our Free Booklet.

Phillips Pressed Steel Pulley Works
Fourth St. & Glenwood Ave.
Philadelphia, Pa.

CRESSON

POWER TRANSMITTING MACHINERY

RING OILING HANGER
"PHILADELPHIA PATTERN"

Shafting Pulleys
Couplings Fly Wheels
Hangers Gears

Rope Driving a Specialty

Power Plants Designed and Equipped

Prices Right Shipments Prompt
Catalogs for the asking

CAST IRON
SPLIT PULLEY

GEO. V. CRESSON CO.

ENGINEERS FOUNDERS MACHINISTS

PHILADELPHIA, PA.
Allegheny Ave., West of 17th St.

NEW YORK CITY
90 West Street

ESTABLISHED 1825

GEO. SIMS & SONS, Engineers

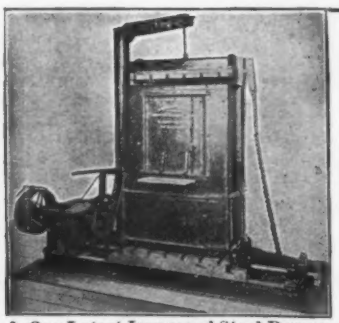
Sherwood Street, Nottingham, England

MAKERS OF IMPROVED

LACE DRESSING PLANT

Starch Rollers in Brass or Mahogany

LACE GASSING MACHINES, ETC.



Our Latest Improved Steel Power Press with New Steel Link Chains

Minnich Baling Press

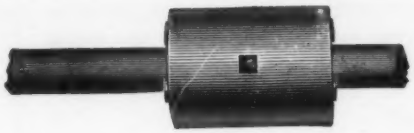
for all kinds of products.

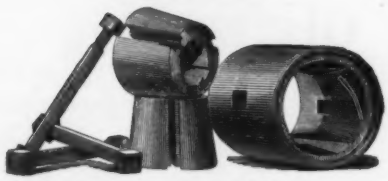
Must turn out more bales with less labor and power than any press in the market.

Send for circular.

Minnich Machine Works,

Lancaster Co. Landisville, Pa.





THE "SELLERS" MAKE OF

DOUBLE CONE VISE COUPLING

has a way of holding shafts together, that no other COUPLING can equal.

WILLIAM SELLERS & CO., INCORPD.

PHILADELPHIA, PA.

Makers of

SHAFTS,
COUPLINGS,
PULLEYS,
HANGERS,

and all most approved appliances for the Transmission of Power.

SEND FOR CATALOGUE AND PRICE LIST.

MACHINE TOOLS.

INJECTORS. POWER CRANES.

Patented in the United States and Foreign Countries.

"If you want the best specify the

American Wrought Steel Split Pulley

with rim of one layer of metal, grooved in center, stiffened by internal central flanges, and rolled beads on edges, six duplex steel arms, radiating from a steel hub and without rivets between hub and rim. More than 1,000,000 in use giving entire satisfaction. Sold by Supply Houses everywhere."

Send for Booklet.

The American Pulley Company

29th and Bristol Sts., Philadelphia, Pa.

ONEIDA

STEEL PULLEYS WILL SOLVE YOUR PULLEY PROBLEM FOR ALL TIME.

NOTICE THE DESIGN AND CONSTRUCTION.

MADE IN WIDEST RANGE OF SIZES OF ANY STEEL PULLEY IN THE WORLD.

DIAM.—6 TO 104 IN.

FACE.—3 TO 40 IN.

BORE—1 TO 8 IN.

Oneida Steel Pulley Co.,

Oneida, N. Y.

THEY ARE BUILT TO FILL ALL CONDITIONS OF SERVICE AND EXCEL IN DURABILITY AND EFFICIENCY. THEY ARE LIGHT, STRONG AND ARE PERFECTLY RIGID.

SOLD BY MILL SUPPLY HOUSES EVERYWHERE SEND FOR OUR LATEST CATALOG AND DESCRIPTIVE MATTER SHOWING CONSTRUCTION ALSO ILLUSTRATIONS OF LARGE SIZES.

6% of Noils Saved

by the use of

75% Olive Oleine

A guaranteed saving of 6 per cent of noils can be made over the use of lard or similar oil by using our **75 per cent Olive Oleine.**

It is not a viscous oil that causes trouble every time the temperature drops, and its use will enable the mill to start its cards or combs as easily Monday morning as any other.

This Oleine is a known quantity of standard worth. It hasbeen used by Yorkshire, (England) worsted mills spinning 60s and under for years.

Being distilled on a fixed formula it is always the same. Every batch oiled with it will run equally well.

Distilled wool grease oleines are **"The Natural Wool Oils."**

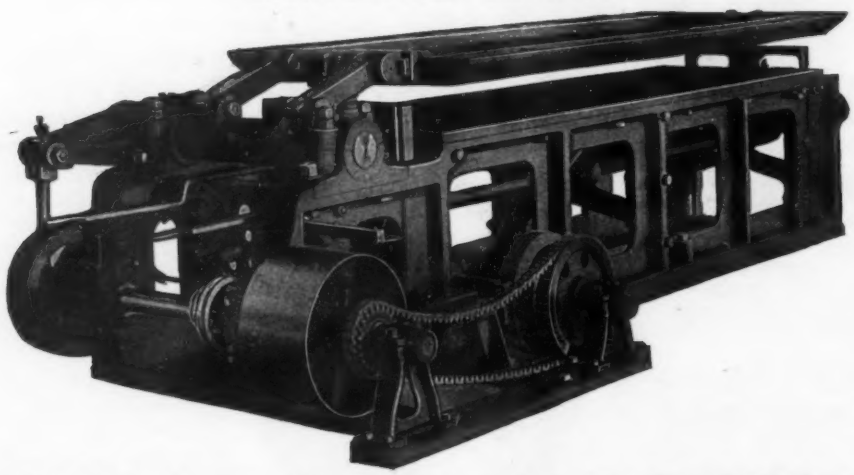
Samples and prices on request.

H. G. McKerrow Company, Ltd.

88 Broad Street, Boston, Mass.

Farrel Foundry & Machine Co.

ANSONIA, CONN.



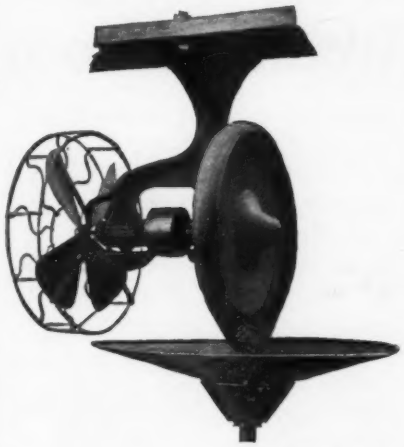
SINGLE AND DOUBLE FELT HARDENERS.

Chilled and Soft Iron Rolls. Heavy Transmission Machinery.

Machine Molded and Machine Cut Gearing, to 20 ft. diameter, Etc., Etc.

Heavy Castings, in Gray Iron or Semi Steel.

THE HYGROSSO



Is the simplest humidifier made—It operates without special appliances of any kind whatsoever—A fan, a revolving disc and a cast iron case—that's all—nothing to get out of repair—nothing to require attention of your mechanic.

The power used is taken from the shafting in the mill—the cheapest obtainable—The water may be taken from any convenient line—it requires no pressure.

It evaporates more water at a less expense than any other type of spray humidifier and produces the **greatest possible cooling effect.**

See full description of Hygrosso in Machinery Dept. of this issue.

JOHN W. FRIES

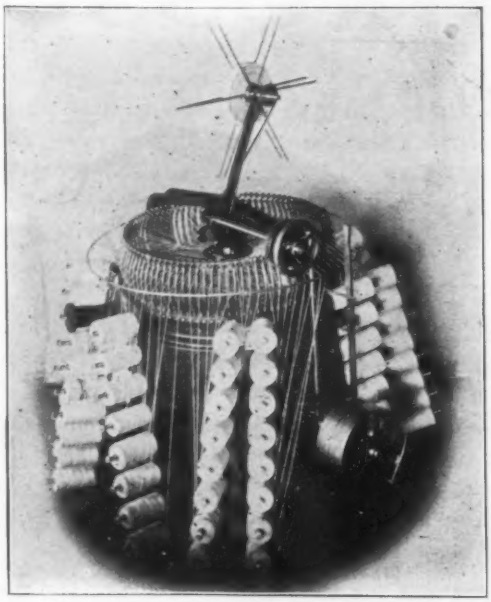
45 Lafayette Street, New York, N. Y.

Make Your Own Bleach Out of Salt Water

We can supply the Knitting Mill trade with an Electrolyzer for the production of bleaching liquor out of ordinary salt water by means of an electrical current, at a very small cost compared with what it will do. Does away with chloride of lime entirely; reduces the amount of sour; no danger of tendering goods. Operates under direct current. Hundreds in use. Prices and full particulars on application.

The National Laundry Machinery Co.

Dayton, Ohio, U. S. A.



The New Circular Loom

Don't fail to see it in operation at the Textile Machinery Exhibition in Boston, April 26 to May 1.

Weaves garden hose at the rate of three feet a minute.

Four picks to every revolution.

Simple in construction.

Adapted for small circular fabrics such as fire hose, garden hose, cable covering, flexible conduits, woven belting, etc.

The Chernack Circular Loom Company
620 Tremont Building, Boston, Mass.

SAVE
Their Cost
In Freight.

THE CHAFFEE PATENT CLOTH BOARD,
Made of paper and wood,
Needs no covers,
Will not split or warp;
Not liable to break.
BOX SHOOKS and CLOTH BOARDS.

MFG. BY
CHAFFEE BROTHERS COMPANY,
OXFORD, MASS.

Clean
LIGHT
Strong

SALEM ELEVATOR WORKS
SALEM, MASS.

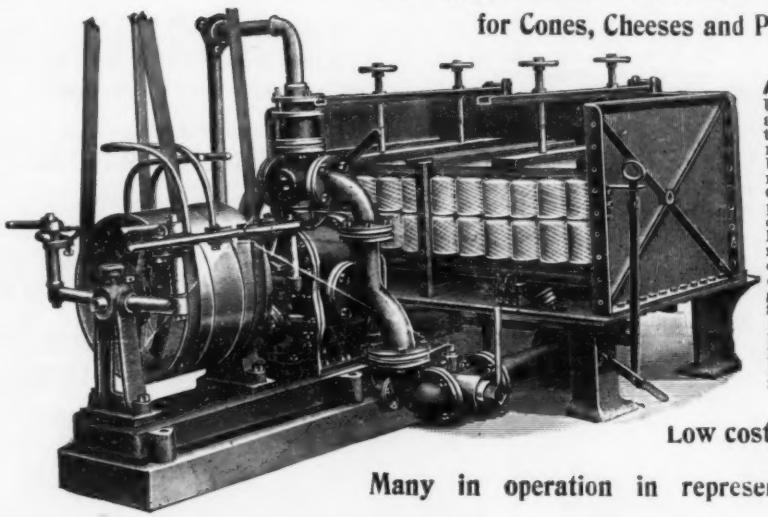
ELEVATORS

ESPECIALLY ADAPTED FOR MILL USE.

SEND FOR ILLUSTRATED CATALOGUE AND ESTIMATE.

Dyeing and Bleaching Machine

The Latest and Most Successful
for Cones, Cheeses and Parallel Tubes



ADVANTAGES: Uniform bleaching and dyeing throughout. Colors requiring several baths dyed without removing bobbins. Good for fast sulphur black and all colors, little dye liquor needed; none lost. Bobbin deformation avoided, consequently good running off. Simple and accurate sampling, large production, little power. Very little attention needed.

Low cost–high quality

Many in operation in representative mills

We also make a specialty of apparatus for dyeing and bleaching roving, slubber bobbins, warp-beams and cops

---

LATEST SPECIALTIES FOR WOOLEN AND WORSTED FINISHING.
DRY AND WET DECATING MACHINES FOR PERMANENT HIGH LUSTRE.
WASHING MACHINES.
SUCKING-OUT MACHINE (replacing hydro-extractor) FOR PIECE GOODS.

L. H. A. Schwartz & Co., 53 State Street, Boston

Importers of Textile Machinery Specialties

WM. FIRTH, Pres. EDWIN BARNES, Vice-Pres. JOHN H. NELSON, Treas.

WILLIAM FIRTH CO.

Post Office Square Building 79 Milk Street, BOSTON, MASS.

. . SOLE IMPORTERS OF . .

ASA LEES & CO., Limited,

TEXTILE MACHINERY,

OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

SOLE AGENTS FOR

JOSEPH STUBBS, Gassing, Winding and Reeling Machines for Cotton, Worsted and Silk

GEO. HATTERSLEY & SONS, LTD. Makers of every Description of Looms, etc

JAMES MACKIE & SONS, LTD., Makers of Flax, Tow, hemp and Jute Preparing and Spinning Machinery

GEORGE ORME & CO'S Patent Hank Indicators, etc.

JAMES YATES & SON, Hardened and Tempered Steel Card Clothing for Woolen and Worsted Cards

LOCKETT, CROSSLAND & CO., Engravers and Builders of Leather Embossing Machinery, etc., etc.

R. CENTNER FILS, Heddles.

GOODBRAND & CO., Yarn Testing Machinery, Wrap Reels, etc.

JOSHUA KERSHAW & SON, Roller Skins, etc.

GEORGE SMITH, Doffer Combs, etc.

BRADFORD STEEL PIN CO., Comber Pins.

CLAPHAM, SMITH & CO., Caps, Tubes and Spindles for Worsted, etc.

ALSO AGENTS FOR

JOSEPH SYKES BROS., Hardened and Tempered Steel Card Clothing for Cotton.

WILLIAM TATHAM & CO., Waste Machinery.

DRONSFIELD BROS., Limited, Emery Wheel Grinders. Emery Filiet and Flat Grinding Machines.

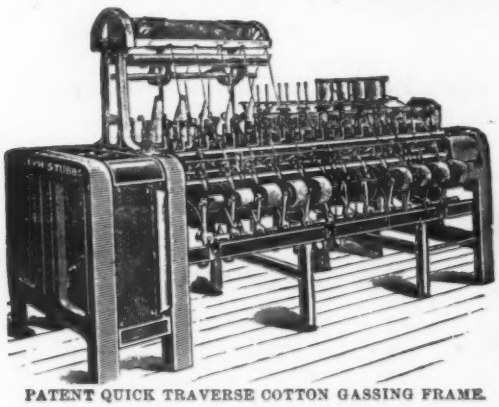
COTTON CORD AND VELVET CUTTING MACHINE CO., Corduroy Cutting Machines, etc.

PICK CLASSES, LEATHER APRONS, PATENT WIRE CHAIN APRONS.

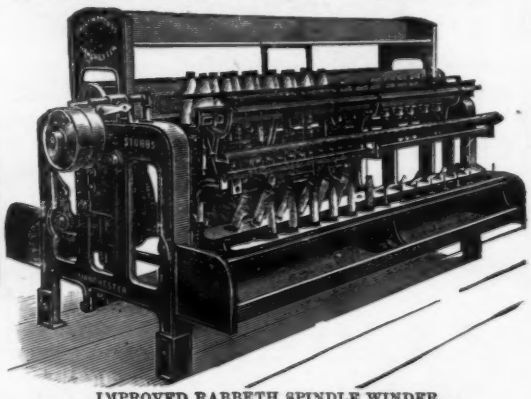
JOSEPH STUBBS - - Manchester, England.

SPECIAL MACHINERY

For Winding, Gassing, Reeling, Preparing, Polishing and Bundling Yarns.



PATENT QUICK TRAVERSE COTTON GASSING FRAME.



IMPROVED RABBETH SPINDLE WINDER. With Patent Tapering Motion, for Single Flanged Bobbins.

Sole Agents for the United States and Canada.

WILLIAM FIRTH COMPANY, Post Office Square Bldg., 79 Milk St., BOSTON, MASS.

DOBBIN'S ELECTRIC SOAP, ABSOLUTELY PURE AND UNIFORM.

Dobbins' Hard Water Soap, a Specific for Hard Water or Water Charged with Chemicals.

AMMONIATED POTASH SALTS FOR SCOURING.

Dobbins' Palm Oil Fulling Soap. Dobbins' "Fast Black" Soap. Pure Olive Oil Potash Soaps.

FREE SAMPLE SENT FOR TRIAL ON REQUEST.

DOBBINS SOAP MANUFACTURING CO., 119 SOUTH FOURTH STREET, PHILADELPHIA, PENN.

WILLIAM FIRTH, Pres. THE FRANK B. COMINS, Vice-Pres. and Treas.

AMERICAN MOISTENING COMPANY

79 Milk Street, Boston, Mass.

Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

"Simplicity and Originality of Design."

Is the largest manufacturer of HUMIDIFIERS in the World. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

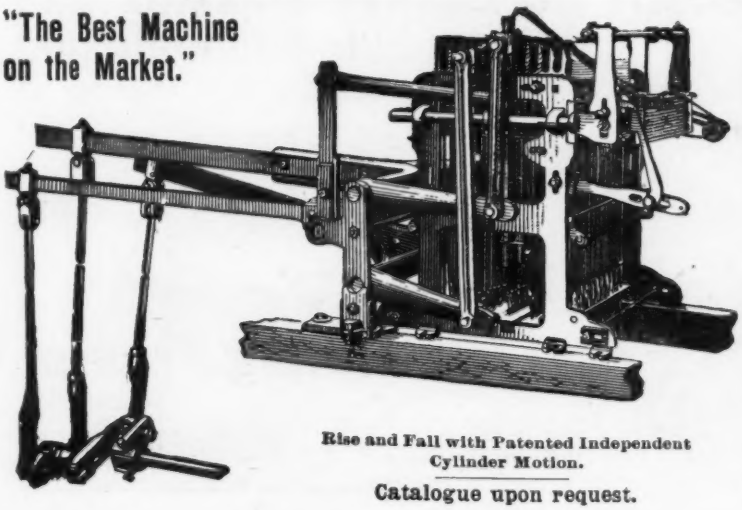
The Only Perfect System of Air Moistening

Has Been Adopted by the Representative Manufacturers of this Country.

The only System adopted in the Textile Schools. Write for booklet "T" on Humidification. Legal proceedings will at once be taken against infringers and users of infringements.

J. S. COTHRAN, Southern Representative, Trust Bldg., **CHARLOTTE, N. C.**

"The Best Machine on the Market."



Rise and Fall with Patented Independent Cylinder Motion.

Catalogue upon request.

USE THE

HALTON JACQUARD

Original Fine Index Machines

Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder.

THOMAS HALTON'S SONS,

Allegheny Avenue and C Street,

PHILADELPHIA

Representative
H. A. Forbes, Paterson, N. J.

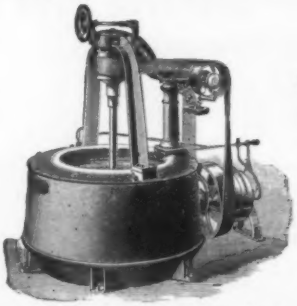
Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines

BIRCH BROTHERS, SOMERVILLE, MASS.

ALBERT BIRCH, TEXTILE MECHANICIAN

Bleaching and Napping Machinery

Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs

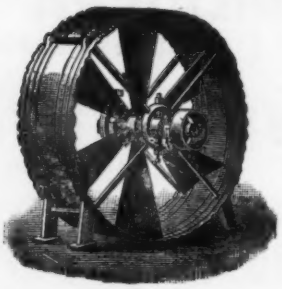


Adjusts itself to an uneven load, runs without vibration
Unusual capacity for high-class work

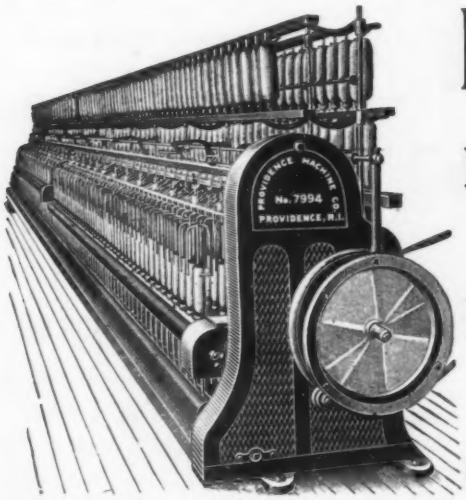
Bridger Hydraulic Cutting Press

Send for Catalog

Tolhurst Machine Works
Fulton St., and 6th Ave., Troy, N. Y.



Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light



Providence Machine Co.

Manufacturers of

Improved Cotton Roving Frames

Improved Worsted Roving Frames

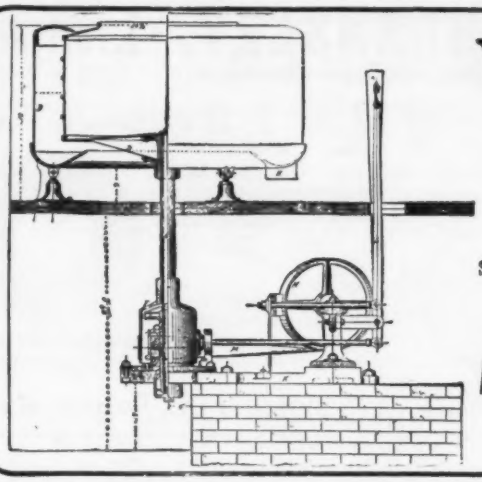
564 Eddy St., - - PROVIDENCE, R. I.

K-A Electrical Warp Stop

IS ACTIVE AND UP TO DATE

SUBSTANTIAL EQUIPMENTS NOW IN PROCESS.
REPEAT ORDERS ARE ENDORSEMENTS OF MERIT.
COMPARISON WITH OTHER WARP STOPS INVITED.
K-A STANDS FOR CERTAINTY—SAFETY—SAVING.

K-A Dept. Mossberg Wrench Company
Central Falls, R. I.



Weston Hydro Extractors.

Special Machines for Acid Work.

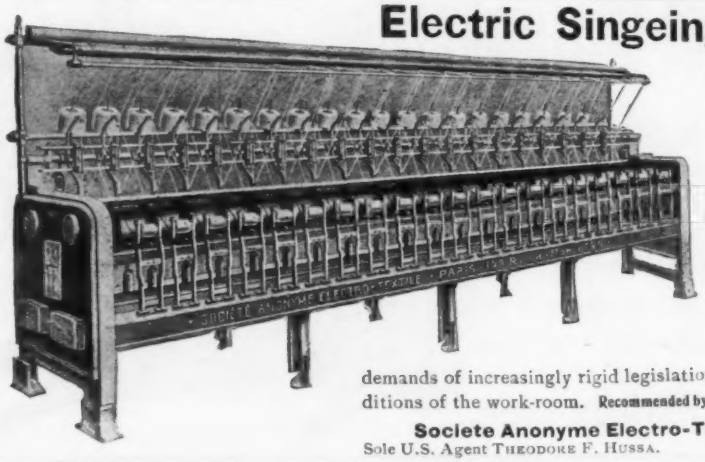
SHAFTING, PULLEYS,
FRICTION CLUTCHES, Etc.

American Tool and Machine Co.

Incorporated 1864. Founded 1845.

109 Beach Street, Boston, Mass.

Electric Singeing Machinery



for Cotton Yarns, Worsted, Silk, Schappe, etc.

We lower your cost of production from 30 to 60%.
We produce yarns of finer quality.
We produce yarns of better color.
We give you cleaner, safer work-rooms.
Simple to operate.
The only machine that allows manufacturers to meet the demands of increasingly rigid legislation controlling the health conditions of the work-room. Recommended by the Commissioners of Labor in France.

Societe Anonyme Electro-Textile, Paris, France.
Sole U.S. Agent THEODORE F. HUSSA. 135 Liberty St., New York City.

Electrical Installations

In Textile Mills is Our Specialty

15 Years Experience Highest References

MODERN LIGHTING SYSTEMS
EFFICIENT POWER PLANTS
RECONSTRUCTION OF OLD PLANTS

Watson-Flagg Engineering Company
Contracting Engineers
Paterson, N. J. **New York, N. Y.**

WILSON & CO., BARNSLEY, Limited

Absolutely secure combination of Shield and Bobbin guaranteed.

Loose Shields Impossible.

BARNSLEY, ENGLAND.

Specialties: PATENT "LOCKFAST" and "CLIMAX" Shields. ENAMELLED CONDITIONING BOBBINS, Impervious to Steam, Moisture or Oil.

GOLD MEDAL St. Louis, 1904. DIPLOMA d'Honneur Liege, 1905. Highest Awards for Bobbins.

Added Strength and Absolute Security.

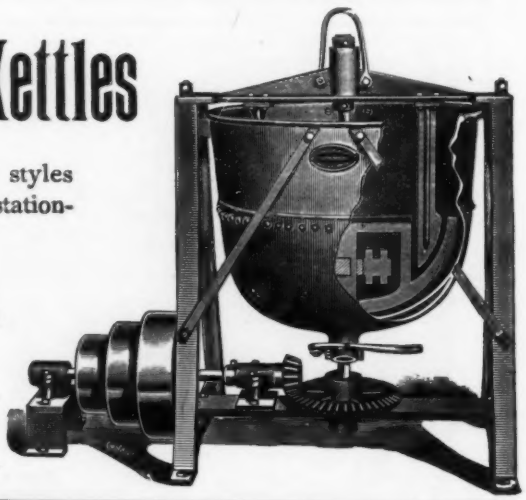
Samples and Prices on Application.

SPEED & STEPHENSON, Agents for U. S., 170 Summer St., Boston, Mass.

Established 1841.

Steam Jacket Mixing Kettles

This cut represents one of our many styles of steam mixing kettles, made with stationary and removable stirrers.

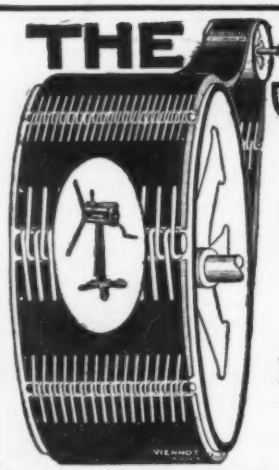


E. B. BADGER & SONS CO.,

COPPERSMITHS,

66 Pitts St., - BOSTON, MASS.

Badger Fire Extinguisher.



THE JACKSON BELT LACER

THE "IDEAL" IN BELT CONNECTION

THE IDEAL is that which is perfect in every detail. **The Jackson Belt Lacer** *IS* perfect in every detail, therefore we are safe in saying that it is **Ideal. Jackson Lacings** lie flat, hold tight, bend easily; **Jackson Lacers** work quickly, mend cheaply, are portable. Wherever there are belts, there should be a **Jackson Belt Lacing Machine.** Uncle Sam thinks so, why shouldn't you?

We send you our booklet and price list free for a postal.

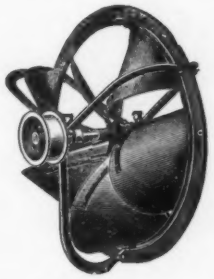
BIRDSBORO STEEL FOUNDRY & MACHINE CO.
BIRDSBORO, PENN.

The dollar saving way of drying textile fabrics

Means more than just getting them dry. It includes the cost of installation and maintenance, the output and quality of product. That's why representative mills

Use a Berry Wheel

This is our Berry Wheel, the most effective agent for drying, eliminating steam and other impurities in the atmosphere.



A. HUN BERRY,
23 West First Street,
BOSTON.

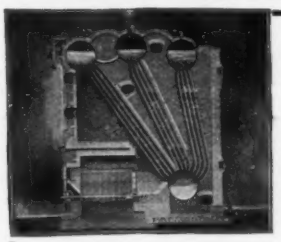
WILLIAM BODDEN & SON, Limited

The "BODDEN" Flyer

For QUALITY OF FINISH
For QUANTITY of PRODUCTION
HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

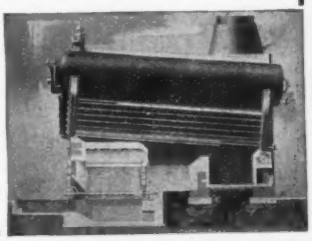
Thomas Mayor & Son, Olney Street, **Providence, R. I.**



The Murphy Automatic Smokeless Furnace

Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



SETTING UNDER TWO TYPES OF BOILERS SHOWN HEREWITH

MURPHY IRON WORKS

DETROIT, MICH.

BRETON OILS FOR WOOL

A grade for every need, scientifically compounded of the best materials in a way to meet the most difficult requirements.

Wool oiled with Breton Oil will stand several months without loss or danger of combustion.

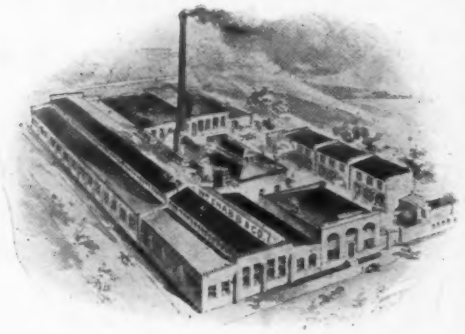
Order a trial barrel sold subject to test.

BORNE, SCRYMSER COMPANY, 80 South St., New York

Boston Fall River Philadelphia Works: Claremont, N. J.

WILLIAM CRABB & CO.

Bagging Loom Reeds
Cotton Banding
Card Clothing in Leather
Card Clothing in Wood
Card Pins
Circles
Comber Needles
Comb Pins
Drawing Frame Pins
Fallers
Feed Rollers in Brass Shells
Gill Brass



Gills and Gill Bars
Hackles
Hackle Pins
Jennie Pins
Needle Pointed Pins
Picker Teeth
Porcupines
Rivets
Rotary Gills
Spreader Pins
Steel Springs
Steel Wire
Tentering Pins
Waste Machine Clothing and Teeth
Weavers' Combs

NEWARK, N. J.

The Cotton Duck used in Lane Baskets

is extra quality, extra heavy weight, woven close and hard. Its great tensile strength, smoothness and impenetrability make it a most desirable and ideal material for this use.

Sold direct or through principal Supply Houses.

See our Descriptive Catalog and Price List No. 37.

FIG. 20.

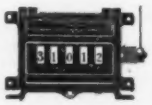
MANUFACTURED ONLY BY

W. T. Lane & Brother, Office & Works **Poughkeepsie, N. Y.**

3 Necessities

FOR EVERY

Textile Manufacturer

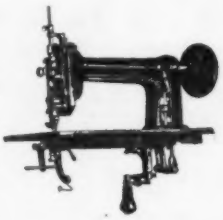


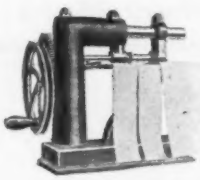
D & H 4207

Counter for registering picks, or production, yards or pieces.

L & E No. 1--1000

Numbering Machine for numbering and marking piece goods for identification.





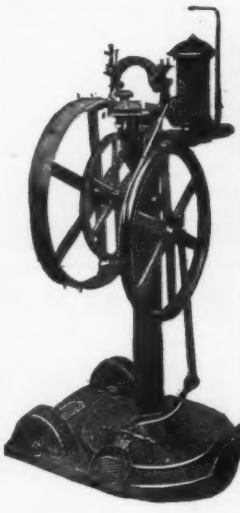
D & H No. 9

Sample Cutting Machine for pinking samples. The modern time and money saving way.

The Durbrow & Hearne Mfg Co.

12 Wooster St., NEW YORK.

DINSMORE



Mill Sewing Machines

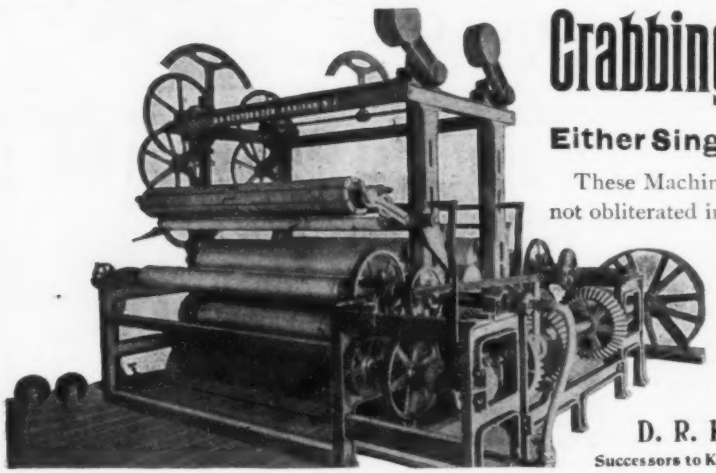
No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

Manufactured by the

DINSMORE MANUFACTURING CO.,

Salem, Mass., U. S. A.



Crabbing Machines

Either Single, Double or Triple

These Machines set the weave so that it is not obliterated in subsequent processes, prevent felting, take out all wrinkles and cloudiness, and will do much more work with less labor than the old style crab. Can be used before or after singeing.

D. R. Kenyon & Son, Raritan, N. J.

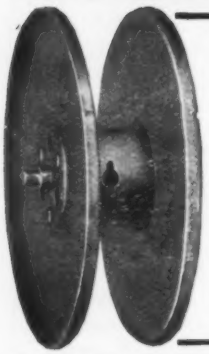
Successors to Kenyon Bros. Tel. Somerville 21

Give Your Product A Good Character

The character of your goods should be represented in the character of your trade-mark. The Kaumagraph Method insures clean, clear results in stamping trade-marks on **all** classes of fabrics.

SAMPLES ON REQUEST.

KAUMAGRAPH COMPANY
156 Fifth Avenue, New York



STAMPED STEEL BEAMS
(Patented)

MADE WITH STEEL BARREL.

Great advantage over the old fashioned cast iron or wood.

Stamped Steel Beams are up-to-date.

FRANK MOSSBERG CO.

See our special Reel, Spool and Beam Catalog. **Attleboro, Mass.**

There are many articles advertised to do the work of

Carbolineum—but have you ever tried

AVENARIUS CARBOLINEUM

"It preserves wood against rot."
On the market since 1875.

Carbolineum Wood Preserving Co.
347 West Broadway, New York, N. Y.

THE PROOF OF THE PUDDING IS IN THE EATING.

The Best That Money Can Buy

SPINNING RINGS.
TWISTER RINGS.
RING HOLDERS.
TRAVELER CUPS.
SILK RINGS.
TRAVELER CLEANERS.

Correspondence Solicited.

WHITINSVILLE SPINNING RING CO.,
WHITINSVILLE, MASS., U. S. A.

Made by

Rodney Hunt Machine Co.

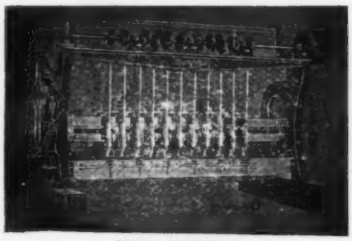
Boston Office, 70 Kilby St.

Works at Orange, Mass.

Send for Circulars

See Advt. of Water Turbines on page 254

Improved Fulling Mills Washers & Dyeing Machines



50-IN. MACHINE

L. F. FALES

MANUFACTURER AND BUILDER OF

SEWING Maniplex MACHINES

FOR ALL PURPOSES WHERE A NUMBER OF ROWS OF SEAMS ARE REQUIRED

BUILT WITH ANY REQUIRED NUMBER OF NEEDLES

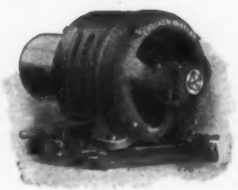
DESIGNER OF SPECIAL MACHINERY | WALPOLE, MASS. U. S. A. | PAPER SLITTING MACHINES

Revolving Portable Elevator

Designed for warehouses, mills, factories and any other place where boxes, barrels, bales, and heavy packages have to be piled up. Involving no breakage, loss of time, it reduces labor to a minimum and therefore pays for itself in a short time. It folds over so as to go through low, narrow doorways Let us tell you all about it. Send for Catalogue.

New York Revolving Portable Elevator Co.,

Jersey City, N. J.



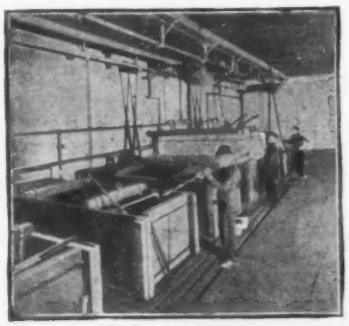
The equipment of the Clark Thread Mills with **C-W** squirrel cage motors is a sign of the times.

Our bulletin 105 Y describes this motor.

Crocker-Wheeler Company, Ampere, N. J.

Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

D. F. WATERS,
54 and 55 Wister St., GERMANTOWN,
PHILADELPHIA, PA.

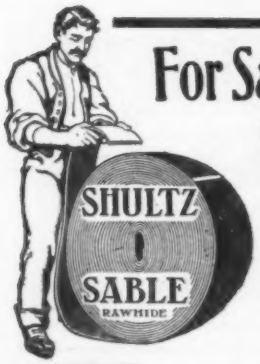
We have the Largest Exclusive Spool Manufacturing Plant in the World with a capacity of 10,000 High Grade Bushed Spools per day.

Our splendid facilities guarantee prompt and immediate deliveries. Our equipment, than which no better exists, guarantees the highest grade of all hard wood spools of the highest quality procurable at medium prices.

COTTON WARPER SPOOLS, COTTON TWISTER SPOOLS,
WORSTED ROVE SPOOLS, CARPET CREEL SPOOLS,
WORSTED REDUCER SPOOLS,
WOOL WARP SPOOLS.

We can give one week deliveries on any order of the above kinds of spools.

Lestershire Spool & Manufacturing Co.,
LESTERSHIRE, N. Y.



For Satisfaction Use Sable.

For a belt that gives no trouble, that is pliable, clings to the pulleys and sticks to the job, a belt that transmits power without loss by slippage, and saves your bearings, buy a

Shultz "Sable" Rawhide Belt.

Sable Belting is made by our patented tanning process. The surface of the belt acquires a smooth, kid-like finish which clings to the pulleys, while the interior retains the strength of rawhide.

We can show you "Sable" belts that have been in daily continuous service for over 20 years, and are still giving the best satisfaction.

Get a "Sable" Belt for 30 days FREE trial.

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THE
Bartlett Water Softening System

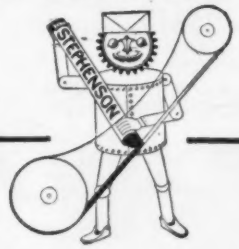
Assures a Uniformly Softened Water
FOR
Washing - Dyeing - Scouring Bleaching and Boiler Feed

Our Systems are adapted to any variation in water supply
Cost reasonable
Cost of operation nominal.

Our Catalogue gives full information

Northern Water Softener Co.
Madison, Wisconsin.

"The After Effects Are Pleasant."



If Quality Counts

and ***Results*** are what you want, refuse to accept a cheap substitute, and insist that your Dealer gives you the kind of ***STEPHENSON Bar Belt Dressing*** that is made for your particular belts. Be sure the ***Man with the Cog-Wheel Face is on each Pound Stick.*** And don't confuse the Brands.

RED Label Brand for Leather Belts
GREEN Label Brand for Rubber Belts

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Write for sample of STEPHENSON Belt Cleaner.

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For Textile Mills.

Every fibre of the fabric stands out magnified under Cooper Hewitt Light. Every imperfection forces itself upon the notice of the operator.

By using Cooper Hewitt Lamps mill owners can reduce their "seconds" by one half, and in many cases practically eliminate them.

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"NO WASTE"

Is the name of the only

Seamless Hard Fibre Roving Can

MADE FROM PURE CHEMICAL HARD FIBRE

NO SEAMS or RIVETS

Absolutely Smooth

No Waste or Broken Ends

Write for prices.

MANUFACTURED BY THE

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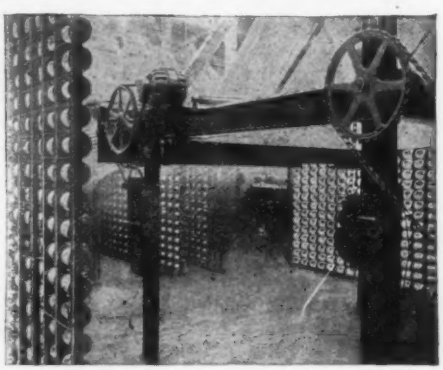

Warper driven by an Individual Westinghouse Motor.

Close a switch attached to the shipper and the motor starts and comes to speed exactly right. Should an end break, an automatic stop trips the shipper and cuts off the power, the motor being started again when the end is pieced. The Morse chain drive precludes all possibility of slip or loss of speed. The warper can be located anywhere without reference to shafting, or to other machines in the room. We have blue prints of a wattmeter-test record, showing interesting features of warper operation; send for them, also for

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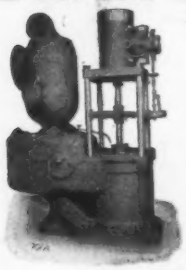
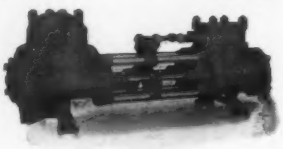
INDIANAPOLIS, IND.

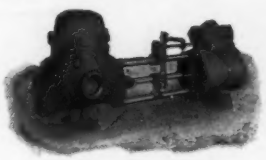
DUPLEX PUMPS, SIMPLE PUMPS
ATLANTIC BOILER FEEDERS
JET AND SURFACE **CONDENSERS** ELECTRIC PUMPS BELTED PUMPS, Etc.



VERTICAL AIR PUMP AND JET CONDENSER



DUPLEX DURABLE PUMP



SIMPLE PUMP

TWIN AIR PUMP AND CONDENSER

GOULDS

Efficient Power Pumps

are operated at a saving of from 50% to 60% over the actual cost of operating steam pump,—is this not worth while looking into. Write us for catalog.

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New York, Boston, Pittsburg, St. Louis, Chicago, Philadelphia, New Orleans, Los Angeles, San Francisco, Louisville.

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are acknowledged the highest in efficiency of any pumps built. We build them exclusively for all operations—Tank Pumping, Dye Houses, Bleacheries, Cotton Mills, etc.

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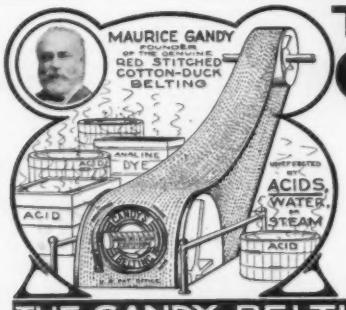

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ANOTHER VICTORY.

On Nov. 18th, 1907, we secured a judgment against Weller Manufacturing Company for selling imitations. On Feb. 5th, 1909, Circuit Court of U. S., Western, Dist of Pa., issued an injunction against C. A. Turner Inc., from infringing upon our rights.

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We also make Gandy Belt Dressing and issue a free Booklet, "Experiences with Gandy."

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Improved Warping and Beaming Machinery

of all types for Cotton Textiles.

Improved Double Acting Nappers and Felters

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COTTON, WOOLEN and WORSTED
CARD CLOTHING

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will increase your carding and improve the quality of your yarn with less waste, greater strength and increased production over any other system.

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Owners and manufacturers of the celebrated **Henderson Card** for Wool, Worsted, Cotton, Waste, Flax and Asbestos. Also manufacturers of

All Kinds of Woolen Machinery.

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Patented Dec. 1908

Combination Card Clothing Which makes workers out of the strippers.

Thousands of these combination strippers running in the best mills in America.

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All Space Occupied

Cases, bales and packages piled tier upon tier easily and quickly. The Economy Steel Tiering Machine will increase the capacity of your storage room, give instant accessibility to any of the goods, and decrease cost of handling.

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Put there with ease and economy, it does away with the old laborious hand method. The Economy Steel Tiering Machine enables a small man to lift a large load and put it where he wants it.

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for WOOLENS, WORSTEDS, FELTS, etc.

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Best Saddle for Top Rolls of Spinning Frames

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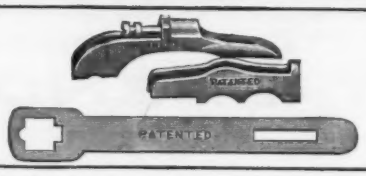
Manufacturers of all kinds of Saddles, Stirrups and Levers



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FOR

Whiton Gear Cutter

We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

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Get Your Supplies from the Manufacturers.

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The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.

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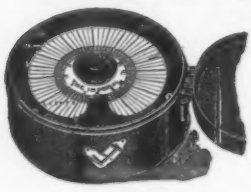

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The Nanz Imperial Watchman's Clock

Compels your watchman to do his duty. This clock will reduce your insurance rate. No complicated mechanism. Absolutely reliable. Full particulars.

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ARLINGTON MACHINE WORKS
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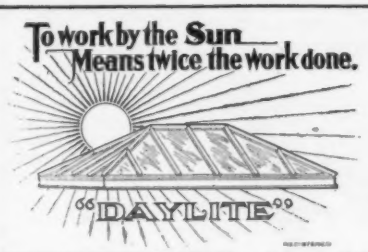

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ADMIT DAYLIGHT NOTHING ELSE
Applicable wherever overhead light is desired
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MANUFACTURER OF PATENTED
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I personally, have introduced and taught people to do bias on my machines in seven countries. I furnish a complete equipment for cutting straight or bias fabric, and folding same.
Automatic Strip Cutting, Folding and Winding Machines in three variations. Universal Folding, Winding and Spooling Machines in three variations. 40-inch Winding and Cutting Machines. All of the seven machines for straight or bias fabric.
These machines pay for themselves in a short time. Any kind of a folder for any kind of fabric, bias or straight, 1-8 to 6 inch.
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WE ARE HEADQUARTERS
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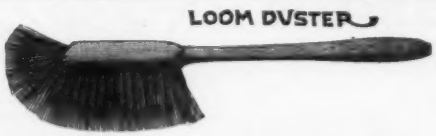
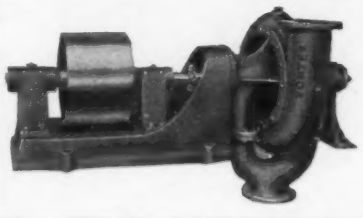


The Loom Duster



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We build them in accordance with the most advanced practice for all requirements. Consult with us on any pumping proposition.
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P. O. Box 70. Lawrence, Mass.
Catalogue T. R. now ready.

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85% Pure Magnesia Steam Pipe and Boiler Covering

Variable Speed Countershafts

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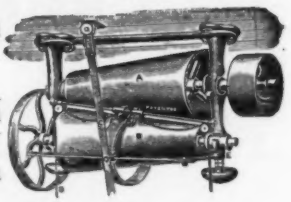
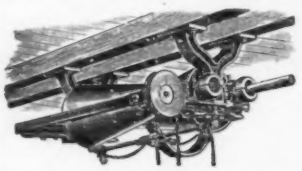


will drive your machines at any desired speed from 1 to 6 by simply pulling a cord. They are guaranteed to do your work.



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THE BEST FIRE HOSE MADE.

(Trade Mark.)

For use in

Cotton Mills, Woolen Mills and Factories.

Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

Awarded Gold Medal at the St. Louis Exposition, 1904.

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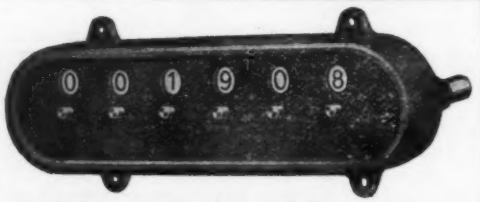

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that will register the output of each machine.

A glance tells how the machines are running —enables you to keep output up and cost down.

used by representative Cotton Mills and Bleacheries. Write for Catalog No. 18.

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Piece End Sewing Machines

on American stand sent on trial most anywhere.

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Bleaching, Dyeing and Finishing Machinery.

Sews any Fabric

Thick or Thin Wet or Dry Without Change Fine Stitch or Coarse Stitch

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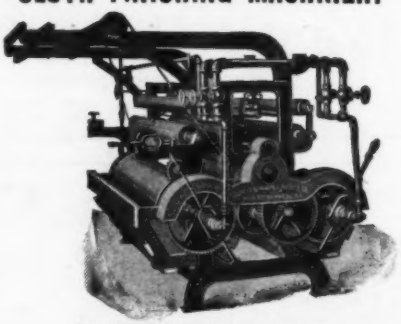

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This style of yarn tester is the one usually used in mills and offices to ascertain the stretch and strength of yarns, twines, etc.

Easy to adjust and use and is very durable.

The machine is finely finished throughout, and the gears are covered in; thus insuring easy and accurate action.

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The

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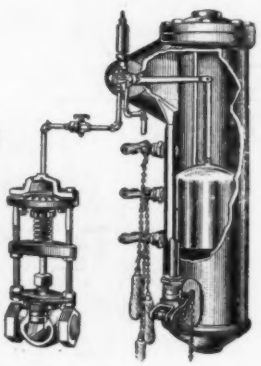
Safety Automatic Feed Water

Regulator



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For tying all kinds of bundles and bales. Simple, quick, sure. Cannot untie, yet instantly fastened and unfastened. Secures yarn, cloth, underwear, etc., when carried from dep't to dep't. An inexpensive, durable time saver. Sample on request.

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Especially Adapted to
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Medals awarded at Paris and Melbourne Expositions.

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Spindles, Flyers, Caps, Tubes and Bearings.
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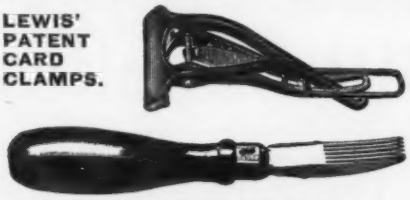
LEWIS' PATENT CARD CLAMPS.



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Drives at a Right Angle

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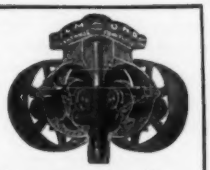

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eliminates mule pulley stand and bevel gear troubles.

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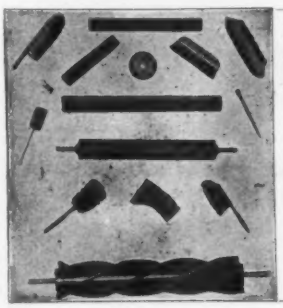

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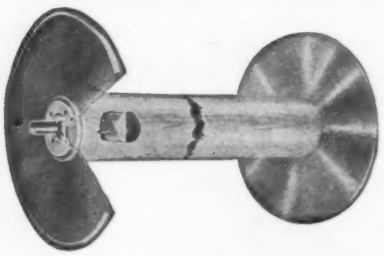

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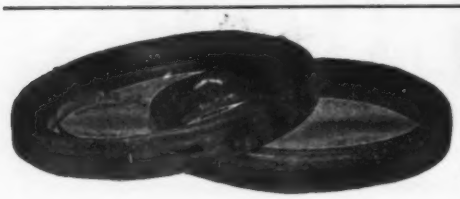

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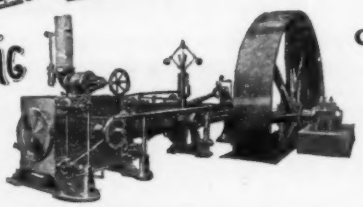

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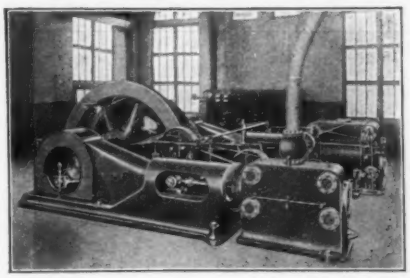

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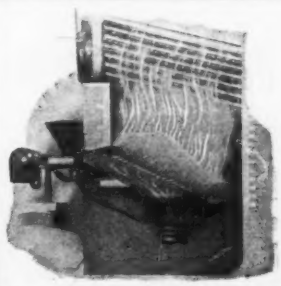

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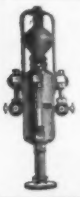

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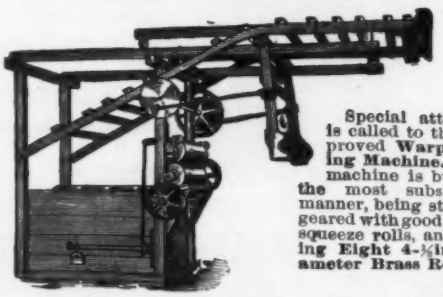

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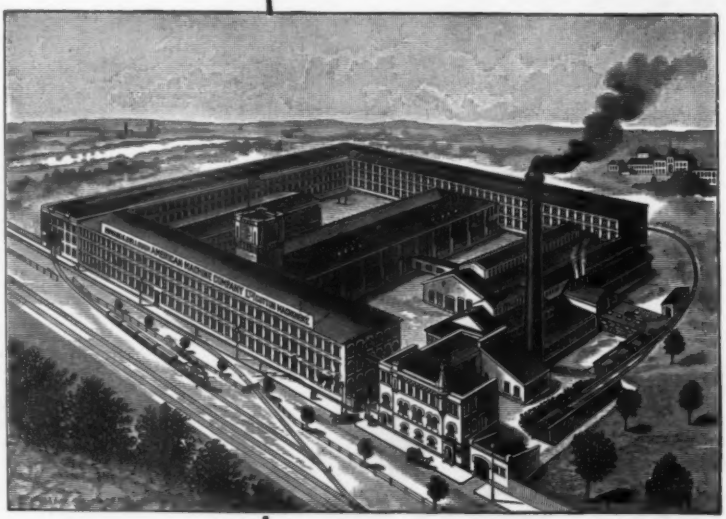

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VOL. 37 (NEW SERIES.) April, 1909 No. 1

Monthly Comment.

A Great Friend of the Sheep.

Last month by the expenditure of considerable labor we calculated the average prices of the unwashed, washed and scoured wools at the latest auction sales at London, Liverpool, Sydney, Melbourne and Geelong, and applied the Payne rates to the average and to the extreme (high and low) prices in each class. As our March issue contained only a partial statement of the results, we give the complete exhibit here:

Sixty million pounds of Cape and Australian wool sold at London in January and February, 1909:

	Price per lb.	Dingley duty.	
Highest price unwashed	47c.	11c.	23%
Lowest price unwashed	2c.	11c.	550%
Average of unwashed	18.6c.	11c.	59%
Highest price of washed	99c.	22c.	22%
Lowest price of washed	3c.	22c.	733%
Average of washed	17c.	22c.	129%
Highest price scoured	63c.	33c.	52%
Lowest price scoured	8c.	33c.	412%
Average of scoured	26.4c.	33c.	125%

Two million five hundred thousand pounds of South American wool sold at Liverpool, England, Dec. 22, 1908:

	Price per lb.	Dingley duty.	
Highest price unwashed	21c.	11c.	52%
Lowest price unwashed	6½c.	11c.	169%
Average price unwashed	14.8c.	11c.	74%

Fifteen million pounds Australian wool sold at Sydney, Melbourne and Geelong, Dec. 5, 1908:

	Price per lb.	Dingley duty.	
Highest price unwashed	39c.	11c.	28%
Lowest price unwashed	3½c.	11c.	314%
Average price unwashed	17c.	11c.	65%
Highest price scoured	40½c.	33c.	81%
Lowest price scoured	6½c.	33c.	507%
Average price scoured	24c.	33c.	137%

This statement was completed a few days before the Payne bill was made public. As the Committee on Ways and Means had closed the tariff hearings with the members believing that the ad valorem equivalent of the Dingley duty on wool was 44 per cent., the rate on the wool actually imported, and had taken no account of the heavy shrinking wools which are excluded because the specific duty is so high, we mailed to each of the members a copy of the above statement. On March 27, the Hon. Joseph W. Fordney made a tariff speech in the house in which he referred to our investigation as follows.

Mr. Chairman. I am a great friend of the American sheep; in other words, the wool grower. It has been my great desire to obtain the greatest measure of protection to American wool.

An ad valorem rate of duty has been suggested by some as being more equitable than a specific duty, but this can not be more truly demonstrated to be impractical than by a statement which I received from the editor of the Textile World Record, published at Boston.

The editor of that journal gave me a report of a recent sale of wool in England, in which he stated that wools of the first class were sold on a certain day, and the maximum price received was 21 cents per pound, and the minimum price received the same day was 6 1/2 cents per pound. The duty on such wool is 11 cents per pound, which would mean for the highest prices prevailing that day, wool, duty paid, laid down in the United States, at 32 cents per pound, and the minimum price on that day, duty paid, laid down in the United States, of 17 1/2 cents per pound.

Again, he gives me the highest price obtanied December 5, 1908, for 15,000,000 pounds of unwashed and scoured wool of the first class—Australian wool. On unwashed wool he gives 39 cents per pound as the highest price obtained, and 3 1/2

cents per pound the lowest price obtained. This wool paid a duty of 11 cents per pound when brought into our markets. The ad valorem rate on the former is 28 per cent. and on the latter 314 per cent. He complains about this high rate ad valorem. Again I say, on the lower-priced wool the tariff is 11 cents per pound, the same as on the high-priced wool. The lower priced wools were admitted to our markets at 14 1/2 cents per pound, while the higher were 50 cents per pound, duty paid, laid down in American markets. Where, on the other hand, had there been an ad valorem duty of, say, 50 per cent., as suggested by some gentlemen who wish a change from a specific to an ad valorem, these cheaper wools would have been put upon our markets at the ruinous price of 5 1/4 cents per pound. No clearer demonstration could be made of the folly of an ad valorem duty on wool.

Again, on scoured wool he quotes the highest price obtained, 40 1/2 cents per pound. The duty on this wool is 33 cents per pound. The ad valorem rate is 81 per cent. Where, on the other hand, the lowest price obtained on that day for scoured wool was 6 1/2 cents per pound, the duty is 33 cents per pound, or 507 per cent. ad valorem. Suppose the duty had been 50 per cent. ad valorem as above suggested, that Australian scoured wool would have been placed upon our markets at a cost of 9 3/4 cents per pound. I believe all men well informed upon this subject will admit that our present specific duty upon wool furnishes better protection and a more equitable scale for prices than would an ad valorem duty.

Well may the American sheep pray to be delivered from such friends as the Hon. Joseph W. Fordney, who is unable or unwilling to recognize that as long as the sheep grower is deprived of protection by low duties on light shrinking wool, the high and prohibitory duties on heavy shrinking wool are of no avail as protection to him. Another of Mr. Fordney's errors is his complete failure to recognize that wool grease, dirt and sheep dung do not count in the production of wool cloth. Take for example the two extremes, 21 cents and 6 1/2 cents, to which he refers. As it is easily possible that the low priced wool shrinks 80 per cent. and the high priced wool shrinks 20 per cent., the buyer of 1,000 pounds of each kind of wool would obtain 200 pounds of scoured wool from (a) the lot that cost $65 (6 1/2 cents a pound in the grease), and 800 pounds of scoured wool from (b) the lot that cost $210 (21 cents in the grease). That is the 6 1/2 cent grease wool (a) costs 32 1/2 cents per pound scoured. The 21 cent grease wool (b) costs 26 1/4 cents a pound scoured. And it is only the scoured weight that counts in manufacturing. The grease, sheep dung and dirt that causes the shrinkage is run to waste.

Applying what is approximately the average Dingley tariff rate, 75 per cent., to these extremes we get this result:

THE CUSTOMARY AMERICAN COTTON BALE.

(a) Grease 6 1/2 cents in Eng. = 11 3/8 cents duty paid.
Scoured 32 1/2 cents in Eng. = 56 7/8 cents duty paid.

(b) Grease 21 cents in Eng. = 36 3/4 cents duty paid.
Scoured 26 1/4 cents in Eng. = 45 9/10 cents duty paid.

On this shrinkage basis the lower priced wool in the grease is the higher priced wool when scoured. By buying the higher priced grease wool a manufacturer would obtain 123 pounds of scoured wool as compared with 100 pounds of scoured wool obtained from the same amount of money invested in the lower priced grease wool. Thus the higher priced grease wool displaces dollar for dollar nearly 25 per cent. more American wool by weight than does the lower priced grease wool. And yet Mr. Fordney, claiming to be a great friend of the American sheep, advocates a straight specific duty of 11 cents a pound, which admits at a duty of 52 per cent. the lot yielding the most scoured wool, and prohibits by a duty of 169 per cent. the importation of the lot yielding the least scoured wool. Judged by results Mr. Fordney is a great enemy of the American sheep.

The American Cotton Bale.

One of the most enthusiastic delegates to the Atlanta Cotton Conference in 1907 was Col. F. E. Maxwell, who owns and operates an extensive cotton plantation at Mound, La. Col. Maxwell took a special interest in the plans to improve the baling of American cotton, and proof that he meant business is now supplied by a lot of cotton, grown on his estate, and baled by an improved method, which has recently been received at Manchester, Eng., and placed on exhibition at the Manchester Exchange. The particulars regarding this shipment are given by the "Guardian" as follows:

THE NEW BALES FROM THE MAXWELL PLANTATION.

Among those present at the Atalanta Congress was Colonel Maxwell, of Mound, La. During the present season Colonel Maxwell has grown on his estate a crop of 1,600 bales of cotton, and has consigned eight bales (as photographed) to Mr. H. W. Macalister, of Manchester, who was chairman of the 1906 Commission. It will be seen from our illustration to what extent the consignment compares favorably, as far as compression and baling are concerned, with the older consignment. The improvement is so marked that arrangements have been made by Mr. Macalister for the bales to be on view at the Manchester Exchange between Friday and Tuesday next.

It is estimated that by the compressing and baling of cotton on the plan adopted by Colonel Maxwell not less than 3 1/4 millions sterling will be saved to the cotton trade annually. The tare on the white bales to the left of our illustration is

3 1/2 lbs. per bale. The covering was spun in America from low-class cotton. The weight of the canvas of the first of the dark bales, counting from the left, is 5 lbs.; it is similar to that used for Egyptian cotton. The second dark bale is covered with the ordinary American canvas, and the tare would be about 9 lbs. Under the old system, c. i. f. and 6 per cent. system, the weight of tare and bands on a bale of American cotton was 30 lbs. The weight on the white bales in our illustration would be 13 lbs., on the bale wrapped in Egyptian canvas 14 lbs., and on the bale wrapped in old American canvas 17 lbs. It will be seen, therefore, that the tare has been reduced from 30 lbs. to about 16 lbs. When, as is the case, 13 million bales are being dealt with annually, the saving on the American cotton crop reaches the huge total of 3 1/4 millions sterling. This is due to the economy of space taken up by the bales in railway wagons and on board ship, and the reduced weight of each bale, due to the better compressing and wrapping. Under the new system, for instance, 100 bales can be put into an American railway wagon; under the old system, only twenty-five.

The German Textile Industry.

A recent report of the financial statements of German textile corporations gives a good idea of general conditions in the German industry. First comes a statement of the total number of textile companies of all kinds and the number of those paying no dividends.

	Total.	Paying no Dividends.
1901-02	343	133
1902-03	345	120
1903-04	343	86
1904-05	351	89
1905-06	360	63
1906-07	366	47
1907-08	362	46

The report concerning 1907-08 included a part of 1907 during which favorable business conditions prevailed. The depression that has recently prevailed has resulted in heavy losses and this condition will be reflected in an increase in the number of non-dividend paying companies in the returns for the current year. This is especially true of German cotton mills which have all suffered severely. Following is the record for cotton manufacturing corporations:

	Total.	Paying no Dividends.
1901-02	133	75
1902-03	132	57
1903-04	130	34
1904-05	135	38
1905-06	130	21
1906-07	139	11
1907-08	127	15

Of especial value as indicating the course of the textile trade is the list showing the yearly totals of capital invested in new textile corporations in Germany:

	Companies.	Capital. Marks.
1901-02	4	9,575,000
1902-03	2	4,000,000
1903-04	2	1,821,000
1904-05	11	16,070,000
1905-06	8	10,550,000
1906-07	14	26,450,000
1907-08	8	11,340,000

Small-pox in Egyptian Cotton.

Several recent cases of small-pox in Lancashire have been ascribed by the medical officers to infection from Egyptian cotton. The first cases occurred in Bolton and a few days later three more cases were discovered in Stockport. A statement by Dr. Corbin, the Stockport medical officer, is reported in the Manchester Guardian as follows:

Dr. Corbin has also explained that at the present time there is an epidemic of small-pox in Egypt. A short time ago another cotton worker in the town had been stricken with the disease, and on that occasion he had satisfied himself that cotton, which came from an American port where small-pox was prevalent, was the cause of the outbreak. The chances of infection were, however, small. It required a combination of circumstances to bring it about. He did not suppose that anyone known to be suffering from small-pox would be allowed to handle cotton on the other side of the water, but if an infected person did handle it, and in the course of manipulation in the cotton mill that particular cotton broke, and was pieced by the worker after putting saliva on his or her hands, the risk was great. But although cotton might be infected, infection was so attenuated and non-virulent when the cotton reached England as to do no harm, unless the infection was actually introduced into the mouth.

Makers of fine muslins here and on the Continent take fine combed yarns from British spinners. It is said that the United States cost of production is probably 20 per cent. greater than ours at present, but that in a few years foreign countries will be able to compete with us on equal terms in all the markets in the world. One firm states that figured Swiss muslins made with power looms in imitation of Swiss goods made by hand is the only branch they have been able to retain, but that their goods are now being imitated.—British Tariff Commission.

The Revision of the Textile Tariff.

Developments of the Month as Seen by the Editor of the Textile World Record.

A CERTAINTY.

The one thing certain about tariff revision is that the Payne bill in the form in which it was introduced into the House will be materially changed before it is sent to the President for his signature. Changes of a tariff bill by the House and Senate are inevitable regardless of merits or demerits of the measure, but in the case of the Payne bill such glaring defects, particularly in the textile schedules, have been discovered as to hasten the process of change.

COTTON YARN.

Slight changes have been made in the tariff on cotton yarn. The rates on single yarns, not colored or bleached, have been reduced slightly, as shown by the following comparison:

Singles.	Dingley	Payne
1s to 15s inclusive	3c a pound	2 1/2c a pound
16s to 30s "	1/5c per pound per No.	1/6c per pound per No.
Finer than 30s	1/4c " "	1/5c " "

The importations in 1907 of yarn affected by these changes amounted to 214,219 pounds. It is not anticipated that importations would be materially larger under the proposed Payne tariff. On colored, bleached, combed and ply yarn up to 200s, the Payne rates are the same as the Dingley except for a slight change in the classification to correct an error in the present law, which imposed 6 cents a pound on yarn not finer than 20s, and 1/4 cents per pound per number on counts finer than 20s and up to 80s. By this arrangement 20s is subject to a duty of 6 cents a pound, and 21s, 5 1/4 cents. This is corrected by the Payne bill, which makes 24s the dividing line between the 6 cents and 1/4 cent per number rates. The Payne rate on yarn from 80s to 200s is 3/10 cent per pound per number, as at present. The imports in 1907 of cotton yarn coarser than 200s and subject to the rates named amounted to 6,655,162 pounds.

The Dingley tariff on 200s and finer is 3/10 cent per pound per number. The Payne bill proposes to change this to 60 cents a pound and 1/10 cent per pound per number for each number above 200. Following are the present and proposed rates on a few numbers:

Count.	Dingley.	Payne.
200	60 cents	60 cents
240	72 cents	64 cents
260	78 cents	66 cents
270	81 cents	67 cents

The spinning of the very high counts is not yet carried on in this country, and doubtless the Committee decided on a reduction of the rates on these fine yarns in order to encourage the weaving and knitting of very fine goods.

The rates on thread are not changed by the Payne bill. The words "cones, tubes or balls" are added so as to include the thread put up in these forms.

COUNTING COTTON THREADS.

The Payne rates on cotton cloth are nominally the same as at present. There is, however, this blanket clause, in Section 318 of the Payne bill, which in effect increases the tariff on goods made of two or more ply yarn and which as a result has aroused a storm of opposition from buyers of cotton goods:

> The term thread or threads, as used in the paragraphs of this schedule with reference to cotton cloth, shall be held to include all filaments of cotton, whether known as threads or yarns or by any other name. In determining the counts of threads to the square inch in cotton cloth, all the threads, whether ordinary or other than ordinary, and whether clipped or unclipped, shall be counted, and each ply of two or more ply thread shall be counted as a thread.

This extra blanket clause was incorporated in the Payne bill upon the recommendation made by Henry F. Lippitt and James R. MacColl, who in a letter dated Providence, R. I., Jan. 15, 1909, and addressed to Mr. Payne, said in part:

> The undersigned, representing the committee on the cotton cloth schedule, in the proposed revision of the tariff, appointed by the Arkwright Club, of Boston, which club represents in its membership about three-fourths of the cotton spindles of New England, respectfully requests that paragraphs 310 and 313 of the present tariff shall be revised to read as follows:

310. The term cotton cloth or cloth, wherever used in the paragraphs of this schedule, unless otherwise specially provided, shall be held to include all woven fabrics of cotton in the piece, or cut in lengths, whether figured, fancy or plain, the threads of which can be counted by unraveling or other practical means, and shall not include any article, finished or unfinished, made from cotton cloth.

The term bleached, dyed, colored, stained, printed, or mercerized, wherever used in the paragraphs of this schedule, shall be held to include all cotton cloth having bleached, dyed, colored, stained, painted, printed or mercerized thread, threads, yarn, or yarns in any part of the fabric, and all fabrics which have, wholly or in part, prior, during, or subsequent to fabrication, been bleached, dyed, colored, stained, painted, printed, or mercerized.

The term thread or threads, as used in the paragraphs of this schedule with reference to cotton cloth, shall be held to include all filaments of cotton whether known as threads or yarns or by any other name, whether in the warp or filling or otherwise. In determining the count of threads to the square inch in cotton cloth all threads, whether ordinary or other than ordinary, and whether clipped or unclipped, shall be counted, and each ply of two or more ply thread shall be counted as a thread. In the ascertainment of the particulars of measurement, weight and value, upon which duties, cumulative or other, imposed upon cotton cloth are hereby made to depend, the entire fabric shall be included.

If the count of thread varies in different parts of the fabric, a full repeat of the pattern or design or varying weaves shall be counted, and the average count thereof shall be taken to be the count of threads to the square inch.

313. Cotton cloth in which other than the ordinary warp and filling threads have been introduced in the process of weaving to form a figure, whether known as lappets or otherwise, and whether unbleached, bleached, dyed, colored, stained, painted, printed, or mercerized, shall pay, in addition to the duty herein provided for other cotton cloth of the same description or condition, weight, count of threads to the square inch and value, one cent per square yard if valued at not more than seven cents per square yard, and two cents per square yard if valued at more than seven cents per square yard.

Cotton cloth, mercerized, or subjected to any other similar process, shall pay one cent per square yard additional cumulative duty to that herein imposed upon such cotton cloth were the same not so mercerized or subjected to any similar process.

The Payne thread counting clause is practically the same as that recommended by Messrs. MacColl and Lippitt. Its general effect is to subject goods made of twist yarn to higher rates of duty, as will be easily understood from the following summary of the present cotton cloth tariff, which is the same in the Payne bill:

Not exceeding 50 threads per inch:

Grey	per sq. yd.	1c.
Bleached	per sq. yd.	1¼c.
Dyed	per sq. yd.	2c.

51 to 100 threads per inch. Rates per square yard:

	Grey.	Bleached.	Dyed.
Not over 6 sq. yds. per lb.	1¼c.	1½c.	2¾c.
6 to 9 sq. yds. per lb.	1½c.	1¾c.	3¼c.
Over 9 sq. yds. per lb.	1¾c.	2¼c.	3½c.

These ad valorem duties are substituted for the above when values exceed certain limits:

Grey, over 7c. a sq. yd.	25%
Bleached, over 9c. a sq. yd.	25%
Dyed, over 12c. a sq. yd.	30%

101 to 150 threads per inch:

	Grey.	Bleached.	Dyed.
Under 4 sq. yds. per lb.	1½c.	2½c.	3½c.
4 to 6 sq. yds. per lb.	2c.	3c.	3¾c.
6 to 8 sq. yds. per lb.	2½c.	3½c.	4¼c.
Over 8 sq. yds. per lb.	2¾c.	3¾c.	4½c.

The following ad valorem duties are substituted for above when values exceed certain limits:

Grey, over 9c. a sq. yd.	30%
Bleached, over 11c. a sq. yd.	35%
Dyed, over 12½c. a sq. yd.	35%

151 to 200 threads per inch:

	Grey.	Bleached.	Dyed.
Under 3½ sq. yds. per lb.	2c.	2¾c.	4¼c.
3½ to 4½ sq. yds. per lb.	2¾c.	3½c.	4½c.
4 to 6 sq. yds. per lb.	3c.	4c.	4¾c.
Over 6 sq. yds. per lb.	3½c.	4¼c.	5c.

The following ad valorem duties are substituted for above when values exceed certain limits:

Grey, over 10c. a sq. yd.	35%
Bleached, over 12c. a sq. yd.	35%
Dyed, over 12½c. a sq. yd.	40%

201 to 300 threads per inch:

	Grey.	Bleached.
Under 2½ sq. yds. per lb.	3¼c.	4½c.
2½ to 3½ sq. yds. per lb	4c.	5c.
3½ to 5 sq. yds. per lb.	4½c.	5½c.
Over 5 sq. yds. per lb.	5c.	6c.

If dyed:

Not exceeding 3½ sq. yds. per lb.	6¼c.
Over 3½ sq. yds. per lb.	7c.

The following ad valorem duties are substituted for above when values exceed certain limits:

Grey, over 12½c. a sq. yd.	40%
Bleached ,over 15c. a sq. yd.	40%
Dyed, over 17½c. a sq. yd.	40%

Over 300 threads per inch:

	Grey.	Bleached.
Under 2 sq. yds. per lb.	4c.	5c.
2 to 3 sq. yds. per lb.	4½c.	5½c.
3 to 4 sq. yds. per lb.	5c.	6c.
Over 4 sq. yds. per lb.	5½c.	6½c.

If dyed:

Not exceeding 3 sq. yds. per lb.	6½c.
Over 3 sq. yds. per lb.	8c.

The following ad valorem duties on cloths are substituted for above when values exceed certain limits:

Grey, over 14c. a sq. yd.	40%
Bleached, over 16c. a sq. yd.	40%
Dyed, over 20c. a sq. yd.	40%

Doubtless the most frequent effect of the Payne system of counting threads would be to increase the rate of duty as compared with the Dingley law. But this is not always the case. The classifications not only by threads per inch, but by values and square yards per pound, and the mixture of specific and ad valorem rates open up a bewildering maze of possibilities when changing to the new

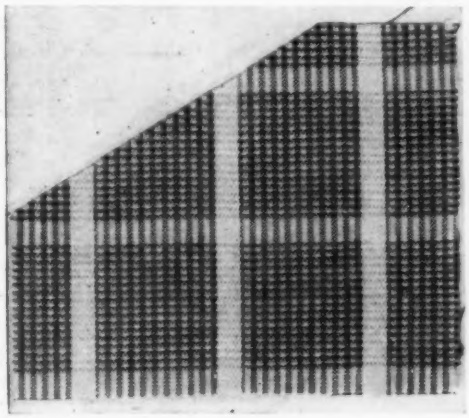


FIG. 1.

system of counting. There is no telling where a fabric will land under the Payne dispensation. Take, for example, the 32-inch cloth shown at Fig. 1, which has 96 two-ply threads in the warp and 90 threads in the filling and measures 4.8 square yards per pound. By the usual method of counting threads, which is followed under the Dingley bill, this cloth has 186 threads per inch. By the Payne method which requires each 2-ply warp thread to be counted as two threads the cloth has 282 threads per inch. Under the Dingley law the goods would come within the 151 to 200 thread classification, while the Payne bill places them in the 201 to 300 thread class. Assuming the price of this cloth to be 12 cents a running yard (13 1/2 cents per square yard) the Dingley duty is 40 per cent., the rate on dyed cloth having 151 to 200 threads and valued at more than 12 1/2 cents a square yard. The Payne duty on the same cloth would be 7 cents (52 per cent. ad valorem), the rate on 201 to 300 thread cloth measuring more than 3 1/2 square yards per pound.

If a cloth of this construction is valued at 16 cents per running yard (18 cents a square yard) the Dingley duty is 40 per cent., the rate on 151 to 200 thread cloths valued at more than 12 1/2 cents per square yard. The Payne duty in this case would also be 40 per cent., the rate on dyed cloth having 201 to 300 threads and valued at more than 17 1/2 cents a square yard. Thus we find that by the Dingley method of counting threads the duty is 40 per cent. ad valorem, whether the cloth is valued at 16 or 12 cents a running yard. Under the Payne bill on the other hand the duty would be 40 per cent. if the cloth was valued at 16 cents a yard, and 52 per cent. if valued at 12 cents a yard. The cheaper the goods the higher the ad valorem rate of duty. The anomaly becomes even more apparent when we consider that the Payne duty is 7 cents a square yard if the cloth costs 12 cents a yard, and is only 7.2 cents a yard if the cost is increased to 16 cents. This is but one of an unlimited number of cases, varying with the amount of ply yarn in the fabric, the yards per pound, the threads per inch and the foreign value.

It is by no means certain that if the first tariff were being framed, instead of an old one being revised, the Payne method of counting threads should be adopted. The authors of this new counting clause seek to justify it by pointing out that twisting threads together to make ply yarns means increased expense and that a higher duty is ordinarily assessed on such yarns than on singles. Therefore, it is claimed, each single strand should be counted as a thread when the yarns lie side by side in the cloth. The fallacy in that reasoning consists in ignoring the fact that as far as warping and weaving is concerned the cost of making cloth from ply yarn, say 2/40s, is the same as if the yarn had been spun single to 1/20s, the resulting count of the 2/40s thread. If a cloth is made of single 40s the cost of warping and particularly of weaving is higher for

a fabric of the same weight than if the single 40s is first doubled to make 2/40s. In the latter case there are less threads per inch in the warp and filling for the warper and weaver to watch and the cost of warping and weaving is materially reduced. Because of these facts it is far from certain that the Payne method of counting is even technically correct.

DISTURBING ESTABLISHED STANDARDS.

But the most serious objection to the Payne thread counting clause is that it disturbs an established and well-understood method of counting threads, introducing great uncertainty and confusion in a schedule that is at best complicated and difficult to understand. This objection to a change of the established order of things would be as sound even if the Payne method of counting threads were in use and the change were to the Dingley method. The Payne method would, as far as we can discover, differ from all other tariff bills in this and foreign countries and causes only confusion. It is unfortunate that this change in counting threads should have been attempted at this particular time, when there is so much criticism of revision by indirection, and doubly unfortunate that the change should operate so as to raise duties on cheap goods more than on the higher priced fabrics. If the tariff on cotton goods is too low let it be raised to the right level after good reasons have been advanced for the increase. But this raising of rates in complicated schedules by changing established methods of counting threads in such a way that even an expert can understand the effect of the change only after complicated calculations, is a mistake and calculated to do more harm than good to the cause of true protection.

DYED, BLEACHED AND MERCERIZED.

Section 318, which changes the methods of counting threads, also contains the following provisions regarding dyed, bleached and mercerized goods:

In the ascertainment of all the particulars, including weights and value, upon which the duties, cumulative or other, imposed upon cotton cloth are herein made to depend, the entire fabric shall be included. The terms dyed, colored, stain, mercerized, lustered, painted or printed, wherever used in the paragraphs of this schedule, shall be taken to mean all cotton cloth which has been subjected to any of these processes, or which has any dyed, colored, stained, mercerized, lustered, painted, or printed thread or threads in any part of the fabric, and the term bleached, wherever used in the paragraphs of this schedule shall be taken to mean all cotton cloth not included in the provisions for cotton cloth dyed, colored, stained, mercerized, lustered, painted, or printed, which has been subjected to a bleaching process or has any bleached thread or threads in any part of the fabric.

The object of this provision is to define what constitutes a colored fabric. It is claimed that a decision of the U. S. Circuit Court, now pending on appeal to the Supreme Court, would if confirmed allow colored goods to be imported as bleached goods. The new clause in Section 318 is designed to prevent this.

CUMULATIVE DUTIES.

Section 321 of the Payne bill provides for cumulative duties on lappet cloths and mercerized fabrics, as follows:

321. In addition to the duty or duties imposed upon cotton cloth by the various provisions of this section, there shall be paid the following cumulative duties, the intent of this paragraph being to add such duty or duties to those to which the cotton cloth would be liable if the provisions of this paragraph did not exist, namely: On all cotton cloth in which other than the ordinary warp and filling threads are used to form a figure or fancy effect, whether known as lappets or otherwise, one cent per square yard if valued at not more than seven cents per square yard, and two cents per square yard if valued at more than seven cents per square yard; on all cotton cloth mercerized or subjected to any similar process, one cent per square yard.

COTTON HOSIERY.

The Payne bill proposes increase duties on most grades of cotton hosiery, as will be seen from the following comparative summary of the Dingley and Payne schedules:

	Dingley 30%		Payne same	
Value not over $1.00 per dozen	50c doz.	15%	70c doz.	15%
Value over $1.00 not exceed $1.50	60c doz.	"	85c doz.	"
" 1.50 " 2.00	70c doz.	"	$1.00 doz.	"
" 2.00 " 3.00	$1.20 doz.	"	1.50 doz.	"
" 3.00 " 5.00	2.00 doz.	"	2.00 doz.	"
" 5.00 "	55%		55%	

The heavy importations of cotton hosiery principally from Germany, affords strong presumptive evidence that an increase of the tariff on these goods is necessary. In the year ending June, 1907, the imports of cotton hosiery were as follows:

Value.	Quantity.	Dingley duty.	Payne duty.
Not over $1.00 doz.	2,449,278 doz.	67%	84%
$1.00 to $1.50 doz.	1,155,693 doz.	58%	69%
$1.50 to $2.00 doz.	1,330,227 doz.	51%	67%
$2.00 to $3.00 doz.	131,433 doz.	59%	71%
$3.00 to $5.00 doz.	28,578 doz.	65%	65%
Over $5.00 doz.	6,380 doz.	55%	55%

The increased rates on the cheap and medium priced grades are probably sufficient to protect the American knitter, but why were the rates on the very high priced goods, which are the luxuries of the rich, left unchanged? This sort of revision makes one think that the members of the Ways and Means Committee are not good politicians. No section of the Payne bill has aroused more prompt, vigorous and widespread opposition than this one which increases the tariff on hosiery. And if the arch enemy of protection had written the section he could not have found a more efficient means of stimulating that opposition than that adopted by the Committee when it left the tariff on the very high priced goods unchanged.

FLAX, HEMP AND JUTE.

The Payne bill gives the American linen manufacturing industry free raw material by removing the Dingley duties of $5.00 a ton from flax straw and 1 cent a pound from flax, not hackled. The change proposed in the rates on linen yarn are shown by this comparison:

Thread made of flax, hemp or ramie:

	Dingley.	Payne.
Not finer than 5 lea, each	13c. lb.	10c. lb.
Finer than 5 lea for each additional lea over 5	¾c. lb.	⅝c. lb.

An idea of the extent of the change is given by this comparison of the duty on a few counts:

Count.	Dingley.	Payne.
6 lea	13¾c.	10⅝c.
45 lea	43c.	35c.
85 lea	73c.	60c.
125 lea	103c.	85c.

Slight reductions are proposed by the Payne bill in the tariff on single linen, hemp and ramie yarns:

	Dingley.	Payne.
Under 8 lea	7c. lb.	6c. lb.
8 to 80 lea	40%	40%
Above 80 lea	15%	15%

The Payne bill proposes a reduction from 35 per cent. to 30 per cent. on jute yarn finer than 5 lea. Cordage made from Manila hemp, sisal, etc., is reduced from 1 to 3/4 cent a pound.

SILK GOODS.

Slight changes are proposed in the silk goods schedule. Partially manufactured silk not advanced beyond the process of carding and combing is reduced from 40 to 35 cents a pound. Two new sections are added to the silk goods schedule to cover artificial silk yarns and fabrics:

400. Yarn of artificial or imitation silk, by whatever name known or process made, thirty per centum ad valorem. All articles and manufactures composed wholly or in chief value of such yarn shall be classified and dutiable under the respective provisions of Schedule L under which they would be classified and dutiable if composed wholly or in chief value of silk; but woven fabrics of artificial or imitation silk or of artificial or imitation horsehair shall pay a duty of fifty per centum ad valorem; Provided, That all woven fabrics composed wholly or in part of artificial or imitation silk or of artificial or imitation horsehair, imported into the United States, shall be marked at or near edge of said fabric, at intervals not exceeding one yard apart, in legible English, the words "artificial silk" or "artificial horsehair," as the case may be. Said marking shall be as nearly indelible and permanent as the nature of the article will permit. Until such article is so marked, no delivery of the same shall be made to the importer. The Secretary of the Treasury shall prescribe the necessary rules and regulations to carry out this provision.

401. Artificial or imitation horsehair not made up into articles, thirty per centum ad valorem; manufactures of artificial or imitation horsehair, or of which artificial or imitation horsehair is the component material of chief value, not specially provided for in sections one and two of this Act, fifty per centum ad valorem; braids and plaits composed wholly or in chief value of horsehair, or of artificial or imitation horsehair, sixty per centum ad valorem; hats, bonnets, and hoods, trimmed or untrimmed, composed wholly or in chief value of horsehair, or of artificial or imitation horsehair, sixty per centum ad valorem.

WOOL.

With the exception of carpet wool, worsted, tops, noils, rags and shoddy the Payne bill wool products leaves the Dingley rates under Schedule K unchanged.

Merino wool not washed on the sheep's back bears a duty of 11 cents a pound; if

washed with water only on the sheep's back, the duty is 22 cents; if washed with anything besides water on the sheep's back the tariff is 33 cents; if scoured, 33 cents.

Coarse combing wool bears a duty of 12 cents a pound whether unwashed or washed with water on the sheep's back; if washed on the sheep's back or on the skin in any other way than by water the duty is 36 cents; if scoured, 36 cents.

There is, of course, no good reason why the duty should be doubled on merino wool if washed on the sheep's back, and not changed on coarse combing wool when so washed. If washing before shearing justifies an increased duty on merino wool, the duty on coarse combing wool washed in that way should also be increased. To put the case in still another way, if washing coarse combing wool on the sheep's back does not justify an increase, the duty on merino wool so washed should not be increased. The effect of the law is that all coarse combing wool is imported in the washed condition to reduce the specific duty by the removal of grease and dirt, while class 1 merino wools of heavy shrinkage are shut out by the 11 cent duty on unwashed wool, and by the 22 cent duty on the wool if washed.

This tariff on unwashed and washed wools of Class 1 and Class 2 presents a glaring inconsistency, whose continuance is not justified by the fact that it has persisted with but a brief interruption for 42 years.

The 33 cent rate on scoured wool is equally unjustifiable. The labor cost of scouring wool amounts to less than a cent a pound, and can be ignored when illustrating the inequality of the tariff on grease and scoured wool. If a lot of wool shrinks 66 2/3 per cent. the 33 cent duty on the scoured weight is equal to exactly the 11 cent duty on the grease weight. But a very large part of the world's clip shrinks less than 66 2/3 per cent., and on such wools the 33 cent rate on the scoured weight is in excess of the 11 cent duty on the grease weight. The following comparison of the tariff on the grease and scoured weight of a lot of wool shrinking 33 1/2 per cent., scoured by us, illustrates this inequality in the Payne bill.

	Total Duty	Increase of Duty	Labor Cost
10,000 lbs. in grease	$1,100.00	..	..
6,652 lbs. scoured	2,195.16	$1,095.16	80.99

Certainly the scourer of such wools, with a tariff of $1,095.16 to protect a process costing $80.99 for labor, need have no fear of foreign competition.

It is not necessary to scour wool of Class 1 and 2 to double the Payne duty. Sorting it into different qualities has that effect, as provided by the following section:

364. The duty upon wool of the sheep or hair of the camel, Angora goat, alpaca, and other like animals, of classes 1 and 2, which shall be imported in any other than ordinary condition, or which has been sorted or increased in value by the rejection of any part of the original fleece, shall be twice the duty to which it would be otherwise subject: Provided, That skirted wools as imported in 1890 and prior thereto are hereby excepted.

After wool is sorted some of the grades are worth more than the unsorted price, some are worth less, but, whether worth more or less, all after sorting are subject to double duty. The effect of the Payne Section 364 is shown by its application to lot of wool sorted under our supervision:

	Total duty.	Increase of duty.	Labor cost.
10,618 lbs. in grease	$1,167.98	..	..
10,618 lbs. sorted	2,335.96	$1,167.98	$65.99

Imposing a duty of $1,167.98 on a product bearing a labor cost of $65.99 is not protection; it is exclusion. Its sole effect is to make access to the world's wool clip impossible. And at this point it might be well to recall the following plank of the platform in accordance with which Mr. Payne stoutly asserts his bill has been framed:

In all tariff legislation the true principle of protection is best maintained by the imposition of such duties as will equal the difference between the cost of production at home and abroad, together with a reasonable profit to American industries.

The inequality of the Payne wool sorting clause is further illustrated by this sorting test of the same 10,618 pounds of wool:

10,311 lbs.	fine combing sort	.2157	$2,223.66
200 lbs.	coarse combing sort	.20	40.00
70 lbs.	burry	.12	8.40
32 lbs.	fribs	.12	3.84
5 lbs.	cotts	.12	.60
10,618 lbs.		.2144	$2,276.50

Allowing for labor cost and increase in value by rejection of inferior sorts, the body

sort of this lot is worth 22.2 cents a pound as compared with 21.4 cents in the unsorted condition. And yet the Payne duty on the 22.2 cent sort is 22 cents (100 per cent.), while on the 21.4 cent unsorted wool it is 11 cents (51 per cent.). This is not the worst of it. The Payne sorting clause imposes a duty of 22 cents on the low sorts, equal in this case to 183 per cent. ad valorem on the burry, cotted and frib rejections from the lot in the above test.

CARPET WOOL.

We come now to carpet wools. The changes in the rates on this class of wool is shown by the following comparison of the Dingley and Payne rates per pound:

Value.	Dingley.	Payne.
12 cents or less	4c.	
Over 12 cents	7c.	
10 cents or less		3c.
11 cents		3½c.
12 cents		4c.
13 cents		4½c.
14 cents		5c.
15 cents		5½c.
16 cents		6c.
Over 16 cents		7c.

The Payne carpet wool schedule reduces slightly the tariff on wools valued at 16 cents or less. Above 16 cents the Payne and Dingley rates are the same. The feature of this part of the Payne bill that deserves special attention is the sliding scale of duties on wool valued from 10 to 16 cents a pound, which are increased as the value increases. This is much inferior to the straight ad valorem tariff as a means of levying duties. For example, if carpet wool costs 11 1/4 cents the Payne duty on 100,000 pounds costing $11,250 is $3,500. If it costs any fraction of a cent under 11 cents, say 10 3/4 cents, the Payne duty on the same wool, costing $10,750, becomes $3,000. Thus by reducing the value of the wool five hundred dollars the duty is reduced by the same amount. The smallest fraction of a cent below any one of the six dividing lines in the Payne carpet wool schedule means a difference of 1/2 cent a pound in the duty to be paid, whereas under a straight ad valorem tariff the ratio between the variation in price and the resulting increase or decrease of the duty is always the same as the ad valorem rate. For example, if in the case just cited the ad valorem rate was 25 per cent. the reduction of the duty by lowering the valuation would have been 25 per cent. of $500 or $125, and the same rate would prevail regardless of what the change is or where it begins or ends. From this it is seen that under the Payne sliding scale of carpet wool duties the inducement to undervaluation is greatly increased as compared with a straight ad valorem tariff.

WOOL BY-PRODUCTS.

The changes in the rates on rags, shoddy and by-products of wool manufacturing, as proposed by the Payne bill, are as follows:

	Dingley.	Payne.
Top waste	30c.	25c.
Roving waste	30c.	25c.
Slubbing waste	30c.	20c.
Ring waste	30c.	20c.
Garnetted waste	30c.	20c.
Shoddy	25c.	20c.
Noils	20c.	18c.
Wool extract	20c.	18c.
Wool waste	20c.	18c.
Woolen rags	10c.	6c.
Mungo	10c.	6c.
Flocks	10c.	6c.

The effect of these changes is likely to be nothing. The old rates were prohibitory; so are the Payne rates. If an article cannot be imported at a profit with more than a 10 cent duty, it makes no difference to the prospective buyer whether the rate is 30 cents or 25 cents, 25 cents or 20 cents, 20 cents or 18 cents. The ad valorem equivalents of these Payne duties are indicated by the following list which gives the English valuation and Payne duty for a number of wool by-products which we recently obtained from Yorkshire, and of which samples can be seen at our Boston office:

	Value.	Payne Duty.	
Noils 40s crossbred	12½c.	18c.	144%
Garnetted waste	21c.	20c.	95%
Roving waste crossbred	19c.	25c.	131%
Carded shoddy	10½c.	20c.	190%
Mungo	8½c.	6c.	71%
Waste, carded	13c.	18c.	138%

WORSTED TOPS.

Paragraph 371 of the Payne bill provides specifically for a duty on worsted tops:

371. Tops shall be subject to the same duty imposed upon the scoured wool of which they are made and six cents per pound in addition thereto.

If that paragraph is put into effect it is likely to cause endless confusion, contention and injury to American industry. The first

difficulty will be to determine what kind of wool each lot of top is made of. Is it wool of Class 1 or Class 2, or is it a mixture of the two? If a mixture, what are the proportions? Is the lot of tops made of carpet wool? If so what is the duty on a scoured pound? Paragraph 362 of the Payne bill fixes the duty on scoured carpet wool as follows:

> The duty on wools of the third class, if imported in condition for use in carding or spinning into yarns, or which shall not contain more than eight per centum of dirt or other foreign substance, shall be three times the duty to which they would otherwise be subjected.

As we have seen, the duty to which carpet wools would otherwise be subjected varies according to a somewhat complex sliding scale of specific duties adjusted to valuations. To determine the Payne duty on a lot of tops it is necessary to determine not only the kind of wool, but the market value of the wool as well. If the wool from which the tops are made was valued at 13 cents the duty on the tops is $(4\ 1/2 \times 3) + 6 = 19\ 1/2$ cents. If the wool was valued at 15 cents the duty on the tops is $(5\ 1/2 \times 3) + 6 = 22\ 1/2$ cents. If the wool was valued at 22 cents the duty on the tops becomes $(7 \times 3) + 6 = 27$ cents a pound. One who has any knowledge of wool and wool products knows that it is impossible to determine the quality of the wool in worsted tops with the degree of accuracy contemplated by the Payne bill. And as for determining the value of the wool of which a lot of tops was made, that is still farther removed from the possible, so far in fact that expert knowledge of wool and wool products is not necessary to disclose its absurdity.

The difficulties and impossibilities we have pointed out in connection with the administration of the Payne tariff on tops would alone cause that paragraph to fall of its own weight and so far as its literal enforcement is concerned become a dead letter. But it is only when the effect of this paragraph on different grades of tops made from Class 1 and Class 2 wools is considered that we discover not only the impracticability, but the serious damage to the American worsted industry that is certain to result from any attempt to enforce it. The effect of this Payne top tariff is best understood by comparing the Payne duty on lots of different grades with the Payne tariff on the wool from which the respective lots were made. For this purpose we will select four lots, a low quarter blood, a crossbred Australian, a fine Australian, and a fine merino territory. The first two are taken from our own practice; the third is a test by Harry Hartley & Co., Boston, Mass., and the fourth is a test by the Botany Worsted Mills, Passaic, N. J. The last two tests are included in the brief submitted to the Ways and Means Committee by the National Association of Wool Manufacturers. We first give the duty on 10,000 pounds of grease wool, then the Payne duty on the worsted top obtained from that wool.

No. 88 Coarse Quarter Blood Wool.

		Payne Duty.
10,000 lbs. grease wool	.11	$1,100.00
6,680 lbs. top	.39	2,605.20
Protection to top maker		$1,505.20

No. 230 Crossbred Australian.

10,000 lbs. grease wool	.11	$1,100.00
5,655 lbs. top	.39	2,205.45
Protection to top maker		$1,105.45

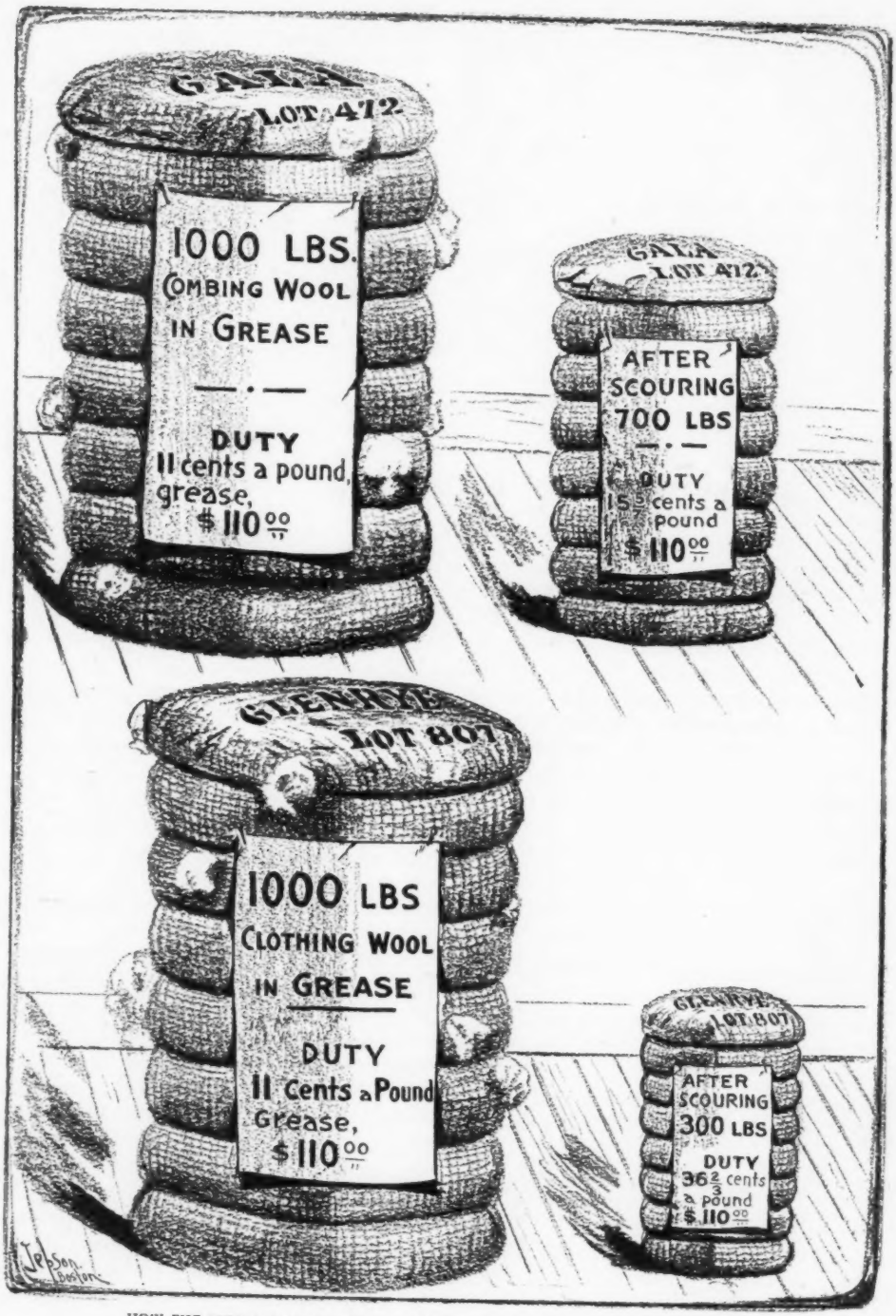
Passaic. Fine Australian.

10,000 lbs. grease wool	.11	$1,100.00
3,925 lbs. top	.39	1,530.75
Protection to top maker		$430.75

Hartley. Fine Merino Territory.

10,000 lbs. grease wool	.11	$1,100.00
2,173 lbs. top	.39	847.47
Discrimination against top maker		$253.53

These comparisons show so clearly the inequality of the Payne tariff on tops that even a Congressman can understand it. It is the same inequality which has for years burdened the carded woolen industry. Both arise from the same cause, a specific duty on grease wool carrying widely varying proportions of grease and dirt. The coarse quarter blood wool, No. 88, yields 66.8 per cent. of worsted top and as a result the top maker gets a protection of 22 1/2 cents a pound on his product. The crossbred New Zealand yields 56 1/2 per cent. of top and the protection drops to 19 1/2 cents a pound. The fine Australian, combed at Passaic, yields 39 1/4 per cent. of top and this time the protection to the top maker sinks to 11 cents a



HOW THE SPECIFIC DUTY WORKS ON GREASE WOOLS OF DIFFERENT SHRINKAGES.

pound. The fine merino territory, combed by Hartley & Co., yields only 21.7 per cent. of top and as a result the protection disappears entirely and in its place there is a discrimination of 11 cents a pound against the American and in favor of the foreign top maker.

From this it is clear that on the coarse tops from light shrinking wools the American top maker is protected by a high and prohibitory duty, while the duty on tops made from very fine and heavy shrinking wool is less than the duty on the wool itself. Under the Payne top tariff the heavy shrinking foreign wools would be combed in foreign mills and imported into the United States in the form of tops, while the industry of manufacturing fine tops in this country would be extinguished. The mere statement of these facts proves that the Payne top paragraph should not become a law. Another should be framed by which the Payne rate on coarse tops will be lowered and that on fine tops raised so as to give a uniform degree of protection on all grades of tops.

WANTED, EVENHANDED JUSTICE.

While the necessity of remodeling this top paragraph to save the manufacture of fine tops from extinction is beyond question, it is no plainer than the necessity of relieving the manufacturer of carded woolen goods from the burden of a specific duty on heavy shrinking clothing wools which has done so much to bring that industry to the verge of extinction. It is inconceivable that Congress will be so blind to these technical conditions or so unfair as to refuse a revision of the Payne top paragraph; or while revising the top paragraph for the benefit of the top makers to refuse to grant the same relief to the makers of carded woolen goods. The evil that the Payne bill threatens the top maker with and the evil that for years has oppressed the carded woolen manufacturer are the result of the same cause, a specific duty on grease wool of widely varying shrinkages. It would be an intolerable discrimination for Congress to withdraw this threat to the worsted top maker and leave the carded woolen manufacturer to suffer from the evil itself.

EXISTING INEQUALITIES.

It will not do for Congress to leave the Dingley top duty unchanged. No one defends it now. The necessity for changing it is made evident by applying the Dingley tariff to 10,000 pounds of crossbred Australian wool at different stages of its manufacture into cloth:

A230 CROSSBRED AUSTRALIAN.

	Total Duty.	Labor cost.	Change of duty.	Increase of labor cost
10,000 lbs. as bought	$1100.			
10,000 lbs. sorted	2200.	$ 66.	$1100. Inc.	$ 66.
6652 lbs. scoured	2195.	81.	5. Dec.	15.
5655 lbs. tops	3647.	155.	1452. Inc.	74.
5398 lbs. roving	3482.	249.	165. Dec.	94.
5372 lbs. single yarn	3250.	314.	232. Dec.	107.
5090 lbs. ply yarn	3079.	572.	171. Dec.	216.
4425 lbs. cloth	3496.	1434.	417. Inc.	862.

The now famous top paragraph 364 of the Dingley law, which gives such variegated results from wool to cloth, reads as follows:

> 364. Wool and hair which have been advanced in any manner or by any process or manufacture beyond the washed or scoured condition, not specially provided for in this Act, shall be subject to the same duties as are imposed upon manufactures of wool not specially provided for in this Act.

In the case of the 10,000 pounds of wool, given above, the present Dingley law grants an increase of $1,100 to protect a labor cost of $66 for sorting the wool; it lowers the duty five dollars on the scoured wool, but still leaves a duty of $1,095 to protect a labor cost of $81 in sorting and scouring; it increases the duty by $1,452 to protect the labor cost of $74 in making the tops, fixing the total duty on the tops at $3,647, of which $2,547 is to protect a labor cost of $155; it lowers the duty by $165 on roving, although the increase in the labor cost is $94, but still leaves the producer of roving with a total duty of $3,482, of which $2,382 is to protect a labor cost of $249; spinning the roving into yarn at a cost of $107 causes the Dingley tariff to drop $232, leaving a duty of $3,250, of which $2,150 is to offset a

labor cost of $314. Increasing the labor cost $216 by twisting and spooling the yarn decreases the duty by $171, leaving the yarn duty $568 less than the duty on the tops from which the yarn is made; manufacturing the yarn into cloth at a labor cost of $862 causes the Dingley duty to rise $417, bringing the duty on the finished cloth to $3,496, which is $151 less than the duty on the tops from which the cloth is made. And this Dingley paragraph 364 is reproduced word for word in paragraph 372 of the Payne bill, with its effect unchanged except on tops which are specially provided for in paragraph 371 given above. That Payne paragraph 372 (Dingley 364) should be eliminated from the statute once and forever. It has no legitimate reason for existence. If a duty is to be levied on any product in process of manufacture from wool to yarn or cloth, it can be done by definite provisions without the aid of such blanket paragraphs as Dingley 364 and Payne 372.

WOOL YARN.

The ad valorem duty on low priced wool yarn is reduced slightly as will be seen by this comparison of the Dingley and Payne rates:

Value.	Dingley.	Payne.
Not over 30c., lb.	27½c. and 40%	27½c. and 25%
Over 30c.	38½c. and 40%	38½c. and 40%

This change amounts to nothing. Take for example a wool yarn valued at 25 cents a pound. The Dingley specific or so-called compensatory duty (27 1/2 cents) on this yarn is 110 per cent. ad valorem. To this the Dingley law adds 40 per cent. more, while the Payne bill proposes to add 25 per cent. In the former case the duty is equal to 150 per cent.; in the latter, 135 per cent.

The Payne bill leaves the tariff on wool cloth unchanged, except for what was evidently an error which will doubtless be corrected, the omission of the following clause from the paragraph fixing the rates on cotton warp dress goods:

Provided, That on all the foregoing, weighing over four ounces per square yard, the duty shall be the same as imposed by this schedule on cloths.

It is not worth while speculating on the effect of this omission, which was without much doubt the result of an oversight.

FREE TRADE WITH A STRING TO IT.

The Payne bill contains several general provisions which are calculated to have an important effect on the textile industry. One of them is Section 5, which after providing for the free admission into the United States of articles wholly the growth and product of the Philippine Islands, contains this clause:

Provided, however, That in consideration of the rates of duty aforesaid, all articles wholly the growth and product of the United States shall be admitted to the Philippine Islands from the United States free of duty.

What textile goods are "wholly the growth and product of the United States"? Certainly not cotton goods with any proportion of Egyptian or other foreign cotton in them; not silk goods of any kind because silk is not produced in the United States; not linen goods because very little flax suited for spinning is raised in this country; not wool goods containing any admixture of Australian or other foreign wool; and surely not goods containing any proportion of wool substitutes, because foreign and American fibers become inextricably mixed in such substitutes. What American textile goods would be admitted into the Philippine Islands free of duty under this Payne section? Has the Manila delegation now working at Washington for free trade between the United States and the archipelago learned one of our own tricks and worked a joker in the Payne bill?

COMPULSORY WORKING OF FOREIGN PATENTS.

Another section of the Payne bill provides for retaliation in patent legislation by foreign countries:

Sec. 41. That whenever a patent is issued by the United States to any citizen or subject of a foreign country it shall be subject with respect to manufacture thereunder in this country to all the limitations, conditions, and restrictions that are imposed by the country of said citizen or subject upon the manufacture in that country under patents issued therein to citizens of the United States.

While the intent of this section is in every way praiseworthy, it is in its present form believed to be impracticable. It automatically makes the patent laws and regulations regarding the working of patents in every foreign country the law of the United States. A law or rule for compulsory working of

American inventions in Liberia or any other country would become United States law without further notice. The complications resulting from such a situation would be endless and the administration of such a law would be impossible. The United States should require the working of foreign inventions patented here. This country is large enough to have its own law for this purpose regardless of whether foreign countries require the working of American inventions patented by them or not. While it is gratifying that the agitation of this question has resulted in the endorsement of the principle of compulsory working by both of the leading parties, the present form of the Payne patent section gives rise to the suspicion that it has been tacked on a tariff bill, not in good faith, but with the intention of striking it out after discrediting the proposition.

MAXIMUM AND MINIMUM.

The maximum and minimum sections of the Payne bill provide that the regular duties shall be the minimum and shall be levied on the products of those countries which admit products from the United States on as favorable terms as are conceded to other countries. If, however, any country discriminates against the products of the United States then the maximum rates shall be imposed on the products entering the United States from that country.

The maximum tariff applies to all cotton and silk goods entering the United States; to flax, hemp and jute products except hackled flax, tow of hemp and hackled hemp, jute fabrics, jute bags and bagging for covering cotton bales; but does not apply to wool or wool goods. The Payne maximum and minimum tariff scheme has been well described as seeking foreign trade with a club. Whether foreign countries would quietly concede the most favored nation treatment to the United States to avoid our maximum duties will be known if the Payne plan is put into effect.

This closes our review of the Payne bill as introduced in the House of Representatives. When the Senate gets through with it and sends it back to the House, doubtless the Hon. Sereno E. Payne will find difficulty in recognizing his namesake. The House will then change it. The conference committee of the Senate and House will next take it in hand and the bill as signed by the President will be so different from the present form as doubtless to call for further comment next summer.

THE NATIONAL ASSOCIATION OF COTTON MANUFCTURERS.

At the meeting of this association to be held at Mechanics Building, Boston, April 28 and 29, it is expected that papers on the following subjects will be read:

Additional Top Strippers on Revolving Flat Cards.

Advantage of Variable Speeds for Ring Spinning.

Bibliography of Cotton Manufacturing.

Combing and Semi-combing.

Commutator Grinding.

Conditioning of Grey Goods.

Cotton Fiber Substances and Its Properties.

Cotton Futures on New York and New Orleans Cotton Exchanges.

Cotton Harvesting by Machinery.

Economy in Steam Generation.

Improvements in Lighting Large Textile Areas with High Efficiency Lamps.

Proper Care of Machinery.

Scientific Methods in Warp Sizing.

Standard Specifications for Staple Gray Goods.

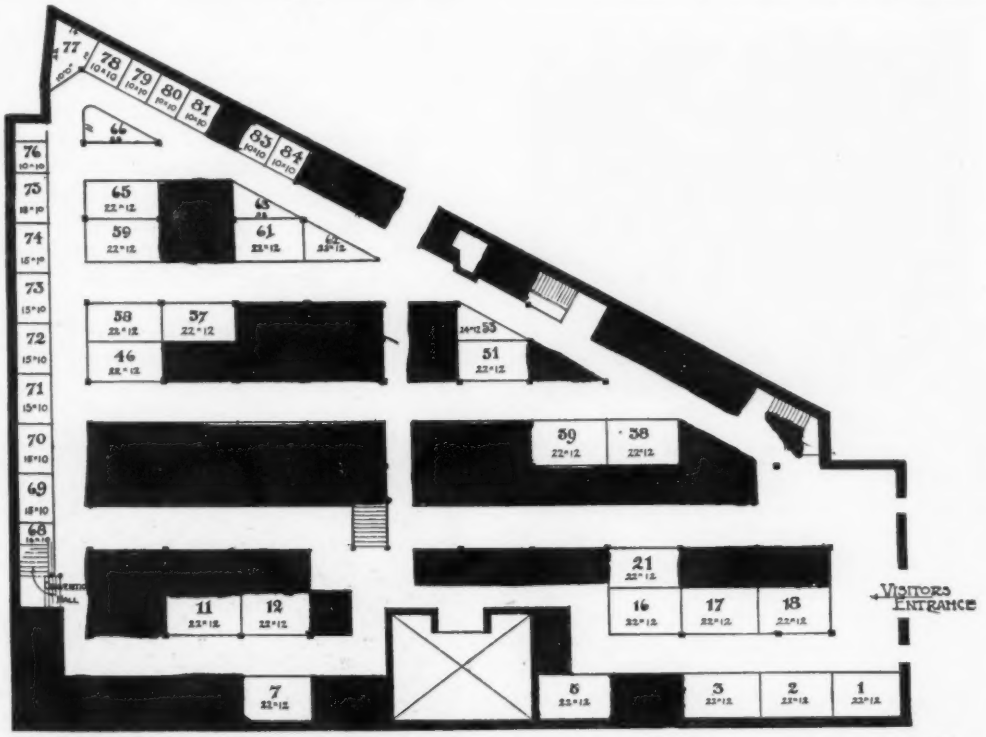
The Textile School,—Its Scope.

Transportation for Mill Yards.

The address of welcome will be made by Gov. Draper. Addresses will also be given by Col. Albert Clarke on the Importance of Outside Conditions, and Prof. George F. Swain, LL. D., on Conservation of Natural Resources.

The Machinery Exhibition which will be held during the week of the convention promises to be a very creditable affair. As the time draws near the interest increases and many concerns who have been waiting to find out who was going in, are now closing contracts for space. A representative exhibition of new machinery and textile devices seems to be assured.

The management intends to do considerable advertising to the public, not only in the Boston district but in the neighboring manufacturing cities and towns. Boston is the center for an immense amount of capital invested in the textile industries and as this exhibition is not restricted to the manufacturers who may attend the convention, there are thousands of persons engaged in or connected with the manufacture of textiles who will find such an exhibition interesting and instructive.



The diagram shows the general arrangement of the Exhibition Hall; the spaces sold to April 1 are crossed out. Representatives of the Textile World Record will be found at space No. 26 on the main aisle and will welcome their friends.

In the first seven months of 1907 the United States bought in foreign markets laces and embroideries to the value of 24 millions of dollars. Switzerland supplied 8 millions, France 7 millions, Great Britain 4 millions and Germany 3 millions.

SPRING CONVENTIONS AND MACHINERY EXHIBITIONS.

From the 26th of April to the end of May there will be three textile conventions and two machinery exhibitions, beginning with the spring meeting of the National Association of Cotton Manufacturers to be held in Boston during the last week in April and the Textile Machinery Exhibition held in connection with it; then comes on the 16th of May the convention of Hosiery and Knit Goods Manufacturers at Philadelphia, with the machinery exhibition during the same week. Still later in the month comes the annual meeting of the American Cotton Manufacturers' Association at Richmond, Va. These features promise to attract good attendance of mill men and others. The exhibitions arranged in connection with these conventions have added to their interest.

During 1907 the United States sold 8,721,303 bales of cotton valued at $482,081,527 for export.

SEASONABLE FABRICS.

DRESS GOODS.

The current demand for dress goods is confined principally to reorders for materials and shades that have sold well during the early part of the season. Prunellas and henriettas both in the plain and fancy weaves are the most desirable fabrics for the immediate spring trade, especially in the popular

FIG. 1.

shades of taupe, wistaria, amethyst, ashes of roses, old rose, etc. The supply of most of these shades is short and with the increasing demand it is doubtful if any relief from this situation can be expected for some time.

The vogue for satin faced goods has created a demand for mohairs in both the plain and fancy weaves. The trade are requesting these goods in the light weight and high lustered finish.

The demand for serges continues to be very active in all branches of the trade, especially white serges, which are being used by the cutting-up trade for early summer suits. Hair line striped serges in the white ground with navy and black stripes are favored by the trade.

Piece-dyed fancy dress goods continue in favor in neat striped effects with checks and plaids gaining as the season progresses. Fig. 1 is a 54-inch striped prunella, sold by F. H. Hayes & Co. at $1.15 a yard. Fig. 2 is a 43-inch herring-bone stripe imported by M. D. Howells and sold at 80 cents a yard.

The manufacturers and importers of dress goods are working on their lines for next fall and winter shipments. Some of these manufacturers who cater to the jobbing trade have sold up their productions for the coming seasons and have started their looms on these goods to insure early shipments. Broadcloths continue among the leading sellers for fall, with prunellas, fine serges and cashmeres very popular in the satin finishes. So far as colors are concerned the trade are ordering shades similar to those of last fall with greys predominating.

SILKS.

Silks continue in good demand in all of the colorings and weaves that have been so popular this season. Owing to the number of new shades called for it has been a very trying year for both the manufacturers and consumers. During the early part of the season, the large operators placed their orders for shades in such quantities that the manufacturers could not meet their demands for deliveries and were unable to accept

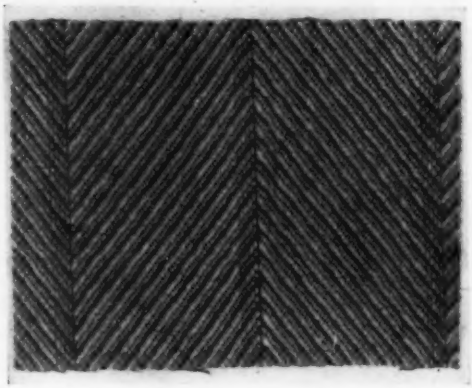


FIG. 2.

reorders for prompt shipments. During the past few weeks some of the manufacturers and jobbers have been able to accumulate small assortments of these shades in messalines and satins.

Spring trade on foulards has been one of the features of the silk market. These foulards continue to be scarce in the leading spring shades.

A number of calls are being received for

striped messalines. These silks have more of the soft satin effect than the foulards and are being used both for linings and dress wear.

During the past few weeks the demand for yard wide black taffetas has increased. One manufacturer reports that, while his trade on blacks is not as large as in former seasons, he has been unable to accumulate a surplus stock of these silks, as the trade has been ordering steadily in small quantities, using his supply as fast as it is received from the mill.

Fancy taffetas are selling freely in the plain stripe effects.

COTTONS.

Conditions in the cotton goods market have changed but little during the month. The immediate demand for some lines is not as active as during the early part of the season, but desirable cotton fabrics are still scarce. This is due to the large number of reorders that are being received for styles that are finding a ready market with the retail trade.

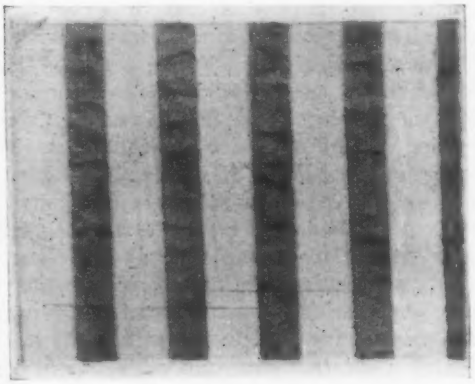


FIG. 3.

The demand for staple domestic cottons, especially sheets and pillow cases and wide sheetings, is very active. The manufacturers report that they are having their usual volume of spring business on these goods and are making good deliveries on most sizes and widths. Trade on 4/4 bleached and unbleached cottons show that the buyers are operating very conservatively.

The market continues to be short many cases of apron ginghams. The manufacturers who make the popular brands have sold their production for the season, while the jobbers are receiving demands in excess of the supply by many thousands of pieces. This causes much delay in completing orders. These conditions will prevail for some time and the probabilities are that stocks will be short for the entire season.

The spring trade on sheer and novelty wash fabrics has improved with the weather conditions. Crinkled striped crepes and seersuckers are among the leading novelties for spring and summer wear. These crepes are being shown in a number of neat and desirable stripes in all of the new spring shades. Fig. 3 shows a neat three-color stripe 25 inches wide from Caragol, Hall & Co. at 12 1/2 cents a yard.

The demand for printed Galatea cloths and percales has been active during the past few weeks. The trade are making inquiries for the 67 by 72 percales which can be handled to good advantage during the early summer months along with the 84 square percales.

Mercerized jacquard effects continue to be the most popular sellers of the white goods market. Some of the most desirable patterns are scarce. The importers who cater to the large jobbing trade have sold up their output for 1910.

Plain white goods such as India linons, Persian lawns, batistes, etc., are not as active as earlier in the season. The trade continues to order large quantities of cross bar and checked lawn in qualities ranging from 10 1/2 to 17 1/2 cents a yard.

RELATIVE VALUE OF WATER POWER.

While large undertakings in water power development show relatively high efficiency as compared with steam, the operating value of the local water power of comparatively small and extremely variable size has gradually decreased as the economy of the steam plant has been improved. This fact is brought out in a recent report by Mr. F. W. Dean, mill engineer and architect, Boston, Mass., with relation to certain takings of mill property.

He shows that in 1843 when it was decided to develop the power under considera-

tion, water power was much more valuable for manufacturing than at present. Then, as now, the only alternative was steam power, and at that time it was expensive in steam and fuel consumptions, and water power, therefore saved much more coal than it does at the present time. The value of condensing was well understood, but engines were crude and large in size for the power developed. They were gradually improved, but it was not until about 1870 that compound engines began to be introduced. No matter what economies may have been introduced in steam engines and boilers, Mr. Dean makes clear that the water power plant must still be considered of some value, because the investment has already been made, but that if the owners were paid a fair valuation for this particular property and privilege, they would be better off without it. In a word, that taking all things into consideration, investment in steam plant would here bring better returns than in water power. This case is typical of many others where only a few hundred horse power are concerned.

RAPID WOOL SELLING.

Although it is not possible for the great majority of wool growers to come to Sydney to see their wool sold, there are almost every sale day a considerable number of owners in attendance in the saleroom. Among these there is very often a feeling that wool is sold too rapidly. The sale goes on with such a bewildering din, and lot after lot is knocked down so rapidly, that the owner is often exercised in mind as to whether his interests would not be better conserved by putting the brake on and checking the speed of the auction. The average grower who comes to see his wool sold at intervals of five or six years is quite overwhelmed by the yelling and clatter, and finds it impossible to follow even the sale of his own wool accurately. He very often expresses the opinion that the auctioneer was in too great a hurry when selling the wool, and did not safeguard his (the owner's) interests as he should have done.

There is, however, absolutely no foundation for the fear that rapid wool-selling is detrimental to the interests of owners. By a natural process of evolution wool selling has become an art, and while it may bewilder the outsider, the trained wool man, be he buyer or seller, finds no difficulty in following the sale of each lot. In every walk of life nowadays we notice men with special acquirements doing work which to the uninitiated may appear marvelous, but which to the man who is doing it is humdrum and commonplace. Take, for instance, in the case of sheepmen, the counting of a flock of sheep as they are rushed through a gate. Set an ordinary man at this task and he will say it is impracticable, and that no one could count them accurately, but the sheepmen will laugh and give the exact number. A wool buyer or seller would be just as bewildered at this task as is the sheepowner at the wool sale.

The first Australian-grown wool submitted to auction in London was under the old method of selling, "by the candle;" that is, the sales lasted for an hour each day, and the bidding on each lot was regulated by the burning of an inch of candle, the lot being knocked down as the candle flickered out. Wool was never sold here (in Sydney) by that method, but in the early days the sales were slow enough in all conscience. The wool firms each had their own salerooms, and with the much smaller offerings they had plenty of time to spare. The auctioneer used to deliver an address on the merits of each line as he offered it, and would often appeal to an owner in the room as to whether he would accept the price. Gradually the method of selling was reformed so as to cope with the increased business, and today the selling is much more calculated to elicit higher and more even bidding.

There is no playing with the matter nowadays. A buyer must shout out his best offer or lose his chance of securing the wool, and the more excited the bidding and the greater rapidity with which the lots are knocked down, the better are the results. A slow, dragging market is most disappointing in results. Of course, it must be remembered that the auctioneer had before him a catalogue in which the market value of each

lot according to the expert of his firm is set down, and in which also owners' reserves are noted. In many cases the valuers are principals of the firm, and where principals do not value they secure the best experts money can attract, and the wools are valued carefully upon the current basis of prices. Fifty or a hundred buyers have also carefully valued the lots up to the uttermost farthing they can go. They have their valuations before them, and if the auctioneer spent much time in dwelling on the merits of each lot it would not cause the buyers to alter their estimates. Experience has shown that speed is necessary to keep up the animation upon which much of the success of the wool sale depends.—Sydney Correspondence in the Textile Mercury.

THE SECONDARY BOYCOTT.

In view of the growing tendency of textile manufacturers to sell their goods under brand names, the following editorial from a recent issue of the Iron Age has a special interest for them as well as for every manufacturer and citizen who wants fair play:

"Of course, nearly everyone understands that a 'primary' or 'original' boycott is the boycotting of the products of any manufacturer who for any cause whatever does not follow the dictation of labor unions. Often a manufacturer is boycotted by unions he has never heard of, as was the case in the most important injunction against a boycott ever issued. It is, however, the 'secondary' boycott which is the most pernicious in its effects and which seems to be little understood.

"It will sound incredible to that class of retail merchants having experience with the secondary boycott that not 5 per cent. of all the retailers in the United States actually know what it means, or that it is capable of becoming a greater menace to them and their general business than mail ordering, range peddling, or many times such combined competition could ever be made to amount to. It is also doubted if the general public outside of the manufacturing interests has any idea of what a destructive and annihilating weapon the secondary boycott is.

"Take the hardware business for purposes of example. A hardware merchant, of course, tries to keep in stock everything in his line asked for by the people of all classes in his community. In the course of time organized labor gets into some dispute with the maker of Pyramid nails, of which the merchant has a good stock, bought in entire ignorance of any dispute between union labor and the manufacturer, and entirely on account of the quality and good general demand he has for such nails. He is surprised when he is called upon by some representative of union labor, who asks if he sells Pyramid nails, and upon his admitting the fact is informed that Pyramid nails have been boycotted, and that because of his selling them no member of the union will buy anything of him, neither the nails in question nor clothes wringers, coffee mills, flat irons, nor anything else kept in his store; in other words, the hardware merchant's entire stock is boycotted, simply because he is selling one thing, the makers of which have been boycotted by a labor union.

"If this is the first case when an attempt has been made to ruin his business, the merchant attempts to make peace with the committee by agreeing to discontinue the sale of Pyramid nails, substituting the Sphinx brand therefor, when behold, within a week another labor representative may call with the information that the new brand put in is also boycotted, and so the distracted merchant may continue to struggle against the secondary boycott until he has tried to sell practically every brand on the market with the same result.

"This illustration pertains to everything which can be identified by name, so that a retail business managed by persons whose brains and money have builded up, is not safe from attack. In fact, at all times is the business of a retail merchant, in any line, at the mercy of a set of men who feel that they have the power to ruin him if he happens to have in stock anything upon which a boycott has been promulgated by labor unions. Most retail merchants do not seem to realize that their entire business practically rests on a powder mine which needs but the spark of a secondary boycott to wreck it. Not only every man engaged in any kind of retail

business should thoroughly post himself as to the full force of this cruel and dangerous weapon, but all other citizens should know that no set of men ever devised a weapon which could possibly develop so much hardship and suffering to entirely innocent people.

"It is asserted that a patent is worthless until its validity has finally been passed upon by the highest courts. Similarly, the time seems to be at hand when a manufactured product identified by a specific name must be specially protected by an anti-boycott decision to make a merchant safe in handling it. While there are some articles which are now boycott proof, protection having been granted them by such courts, the articles thus immune are comparatively few. It is deplorable that the sale of articles which the highest courts have not protected against boycotting will be dangerous until all kinds of boycotting are abolished by law. Since retail merchants in general are the sufferers from the secondary boycott, they will no doubt study the question carefully, and, although organized labor represents but a very small proportion of any community, protest through their representatives in Congress against the enactment of proposed laws which will enable one class of citizens to injure or ruin the business of any other class."

CONCRETE CONSTRUCTION FOR TANKS.

Editor Textile World Record:

In a recent issue we note an inquiry from one of your readers regarding the relative advantages of concrete and wooden tanks for the storage of hot water in respect to loss of heat from radiation.

In a general way concrete is known to be a very poor conductor of heat. An extreme example which confirms this has come under our direct observation where a floor five inches thick was subjected to a fire beneath at a temperature varying between 1,700° and 2,000° for a period of five hours and yet the hand could be borne on the top surface without fear of burning.

In addition to the non-conductivity of concrete, the mass and thickness of the walls and bottom of a tank so constructed in order to gain strength and imperviousness are much greater than in one made of wood. Moreover, in the concrete tank there is no greater chemical action upon the concrete by boiling hot water or steam than there is by cold water, so that there is no danger of injury by either heat or cold. On the other hand, a wooden tank subjected to constant steaming and saturation by hot water eventually becomes leaky and a good radiator of heat. The decay under these conditions is considered to take place much sooner than where the wood is subjected to cold water or normal atmospheric temperatures. Where wooden tanks are repeatedly filled and emptied the alternate swelling and shrinking is cause for annoying leakage and more rapid decay.

On account of the low conductivity of concrete there is no danger of serious internal stresses in the material itself due to hot water on the inside of a tank and exposure to cold on the outside; the degree of change is too gradual to cause stresses which would crack the tank. Moreover, it must be remembered that the coefficient of expansion of steel and concrete are almost exactly identical, so that no matter how great the range of temperature through which the walls may go, the steel which per force must vary in temperature with the concrete, will not set up any internal stresses between the two materials, but will work as perfectly at one temperature as at another. This is one of the valuable properties of the combination of the two materials for all uses—not tanks alone.

In the matter of cost the reinforced concrete tank is without question higher, but its durability, freedom from leakage, and its non-conductive properties make it a better investment for the storage of hot water.

Aberthaw Construction Company.

The textile imports from Germany for the six months ending December, 1907, amounted to $15,491,620 as compared with $13,896,120 for the corresponding six months of the previous year, an increase of $1,595,500.

THE CARDED WOOLEN MANUFACTURERS.

The Maine Carded Woolen Manufacturers' Association, which includes among its members practically all the carded woolen manufacturers of Maine, has opened an office at 450 Old South Building, Boston, where the president, Gordon Dobson, will have his headquarters. An active campaign will be carried on with the object of securing a revision of the tariff schedules that will correct the inequalities from which the carded woolen mills are suffering. It is the intention to broaden the scope of the organization to include the carded woolen manufacturers of the whole country.

THE NEW YORK COTTON EXCHANGE.

(From a speech on Dec. 16, 1908, by the Hon. Benjamin Humphreys, of Mississippi, in the House of Representatives.)

The following amendment to the penal laws of the United States was under discussion:

That no letter, containing any advertisement of any contract which is made for future delivery of any product or products of the soil, without agreeing and intending that the article shall be actually delivered or received in kind, shall be carried in the mails.

Mr. Chairman—The amendment is not what I would have it, and it does not go as far, in my opinion, as it should go. I would greatly prefer the bill which was introduced by the gentleman from Texas (Mr. Burleson), but this will at any rate forecast the opinion of Congress on the subject. Like the old fellow who entered his horse in the race, and, when reminded that he had no chance to win, said: "I know I ain't, but I want them durn fellows to understand that I'm agin 'em." That, at least, will be the effect of this amendment. It is a mistake to say that this amendment will interfere with legitimate investment in cotton. About three years ago in the month of February, the fluctuations on the New York Cotton Exchange, in July cotton, varied more than $20 a bale. I have many constituents who produce 1,000 bales of cotton annually. Here is a fluctuation of $20,000 in the value of the product of their farms on the New York Cotton Exchange in one month. Does anybody believe that makes for the orderly conduct of a great business? Does anybody believe that that promotes the cotton industry? Does anybody believe that it has any effect except to either depress abnormally or to advance abnormally the price of a product in which the producer and the consumer and the spinner are equally interested, and whether it goes up or down injures one or the other?

Every man who defends this so-called cotton exchange tells of the necessity it is to the spinners. The case is stated in this way: A cotton spinner having some goods to be delivered in October buys 1,000 bales of October futures. When October comes he calls for the cotton, and if it is not forthcoming he sells his futures and buys the cotton from some one who can deliver it. Is that not a perfectly legitimate transaction? So much for the theory, Mr. Chairman, but what of the facts? If a spinner in England wants to buy cotton he can purchase it on the Liverpool Cotton Exchange, because that is, in fact, what it purports to be—a cotton exchange. But New York has no cotton exchange which in the remotest degree deserves to be so called. It is not operated for the purpose or in the expectation that it will in any way facilitate or promote the exchange of cotton.

No man who desires to invest in cotton would think of going to the New York Cotton Exchange. Buy cotton for future delivery as you may, but if you should ever do the unexpected and freakish thing of demanding the delivery of the cotton so contracted for the rules of this exchange, in relation to which your contract must be construed, are purposely drawn so as to make your demand ridiculous. They keep on hand for the purpose some hundred and fifty thousand bales of dog-tail, unmerchantable cotton which they tender to you and which under their rules you must accept. You buy 1,000 bales at 10 cents. You want the cotton. For that reason you went to a cotton exchange. Instead you are offered the cash. You do not want cash, you want cotton. You are thereupon advised that under the rules of the exchange they will deliver you 1,000 bales of their worthless dog tails and pay you 3 or 4 cents differential in cash.

Now, why should a spinner or anybody else who wanted cotton—not contracts, not margins, not fluctuations, but cotton—either for consumption or for investment, why should he go to the New York Cotton Exchange, where he knows in advance that he cannot get cotton? Here is what Mr. MacColl says about this future business, speaking for the New England Cotton Manufacturers' Association, of which he was president. He was before the Committee on Agriculture, and the gentleman from Tennessee (Mr. Sims) was interrogating him:

"Mr. Sims—I would like to have you define what you mean by the term 'speculation.'

"Mr. MacColl—I think that it is very well understood that there is a large number of people connected with the speculation in cotton, raising and depressing the price.

"Mr. Sims—Professional operators?

"Mr. MacColl—Yes."

Again, he says:

"Mr. MacColl—My opinion is that the spinners of this country have used the future market to a very small extent. Lately they have been forced to use it more, but they have not used it to any large extent in years gone by."

Now, listen to this:

"There are thousands and thousands of manufacturers who have never bought a bale of futures.

"Mr. Sims—Is it not a fact that the speculators

are divided into bulls and bears and that the effect of their operations is nil?

"Mr. MacColl—If there is no evil in it, it is not worth while for us to waste time about it. We think it has been a tremendous evil in the last three or four years."

And so, Mr. Chairman, we have the manufacturers, who consume the cotton, and the planters, who produce it, both denouncing the business of this sham exchange; both believing, as they may well believe, that its operations are inimical to the real legitimate cotton business of the country.

The planter produces a thousand bales of cotton, and of course desires to secure the highest possible price for it. The spinner desires to purchase that cotton at as low a price as possible. It is entirely proper, entirely praiseworthy if another party who is in no way connected with the manufacture of cotton buys this thousand bales from the planter, hoping that he may subsequently sell it to the spinner at a profit. That is investment in cotton, and, to my mind, it is immaterial whether he pays part cash or all cash or no cash.

Now, note the difference: Two gentlemen on the New York Cotton Exchange who never saw a bale of cotton observe these negotiations and one bets that the price of cotton will go up and the other that it will go down, and both set about to organize their forces to turn the market. To this end false reports are circulated, combinations are entered into, and all the machinery known to intrigue and cunning is set in motion to force the price of cotton either up or down—to the confusion, to the dismay, and sometimes to the ruin of the men engaged in the real cotton business. This is investment in fluctuations—and how that business flourishes! In February, 1904, July cotton on the New York Cotton Exchange fluctuated from 17.55 to 13.02—$20 a bale in a single month—and when July came cotton sold at 10.18, a difference of $37.50 a bale.

How much cotton passes through this cotton exchange? I have no figures before me for the year just ended, but I find in a speech delivered on this floor last spring by the gentleman from Tennessee (Mr. Sims) the figures for some previous years which will answer my purpose just as well. New Orleans received 2,296,971 bales last year, and had 21,964 remaining on hand at the close of the season; Galveston received 3,891,695 bales, and had 30,820 on hand; Savannah received 1,668,633, and had 8,593 on hand; while New York, whose cotton exchange sold 90,000,000 bales, received 23,108 bales and had left over 169,975.

Phantom cotton, spook cotton, cotton that never was and never will be! An inexhaustible supply against an inexhaustible demand—as long as Mr. Sully can stand on his feet and say, "I buy," and Mr. Brown can muster the strength to say, "I sell." One million, ten million, fifty million bales! In the meantime the planter who has cotton to sell, and the manufacturer who desires to purchase it must stand by in confusion until one of these worthies is "forced to the wall." The amendment of the gentleman from Tennessee simply says to these "investors," "You shall not use the mails of the United States to carry on any such business," and I believe that ought to be the law.

CLOTH MEASUREMENT IN ENGLAND.

BY WESSEX.

The methods most in vogue in England of measuring fabrics are the primitive ones. The yardstick has disappeared as a means of measuring long lengths and it has been supplanted by the five yards table. People who desire to measure with exactness place two men at the table; one to pull the cloth down, the other to regulate the tension fairly and to mark each interval with chalk. One man's memory is a check on the other's, for as each chalk-mark comes to the tail of the table the puller calls "five," "ten," or whatever the last number was, thus correcting any mental lapse of his work-fellow. Firms not so particular place one man at the five or ten-yard table and by pulling a cord connected to a spring-arm at the top of the table, he makes a chalk-line at the further end without moving from his own position.

Use of the table is general where fabrics of value are measured. Goods of low value, like flannelettes, of which only full yards are charged, are measured automatically upon the rolling machine. The dial on this machine is used also to guard against possible mistakes of 5 or 10 yards made in hand measurement. But only the lighter fabrics are ordinarily rolled by machines. The apparatus is a simple sequence of rollers through which the cloth is threaded to be wound on a board held by revolving chucks. A drum, one yard in circumference, is turned by the friction of cloth traveling over it and counterweights attached apply brake-power to stop the piece ends. The drum-shaft is furnished with a bevel-gear, operating an arm carrying worm-gear to actuate an index finger traveling round a dial marked in yards and fractions of a yard. The arrangement is simple but not strictly accurate. Slipping occurs, for the tension is unequal and often the motive power available for rolling is of unequal revolution. The result is a lack of accord between the movement of the cloth and the movement of the finger round the dial.

An attempt to remedy this factor of slipping is made by Mr. George Casperson of Birstall (near Leeds), whose device is a new one. Instead of a drum he employs a wheel

with a rubber coated rim, mounted in ball-bearings and free to move outwards away from the concave block which serves as its brake. The cloth passes between wheel and brake, and a cam and lever attachment serves to record yards and inches upon a clock-dial above, while a pointer working round the measuring wheel shows yards, quarter-yards and eighths also. Of the working of this promising device the market has little experience thus far. It is applicable either to machine-rolling or to the hand-rolling which is almost universal upon the heavier goods.

The last-named apparatus measures cloths

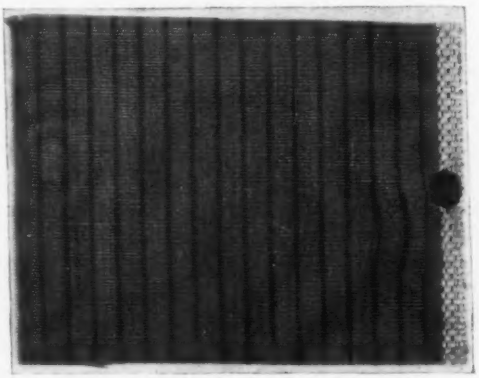


FIG. 1.

but does not mark them with their measurement, as does the Lehmann measuring machine. This also is a newcomer and a somewhat elaborate and expensive piece of mechanism. The Lehmann machine has for its main feature a drum built up of battens, one yard in circumference and expansible, by the turning of a screw, to one meter. The fabric is mechanically guided to the drum on one side of which are two temples resembling those of a loom. These hold, without stretching, the cloth and also obviate slip. The drum is fed with a strip of thin zinc, serrated at the sides to form the legs of staples. All down its length the strip is numbered with consecutive figures and at every revolution a small appliance comes into play and detaches one staple, forces its points through the fabric and clasps them. Thus a neat little metal tag is left at yard intervals along one list, shown at Fig. 1. The cost of the Lehmann machine with a rolling attachment and a dial indicating the progress of measurement is approximately $400 in England. The zinc strips sell in packages of 100 and those numbered from 1 to 60 cost some $2.50 in grey metal and $4.20 in copper-colored metal.

A simpler device for measuring, and proving the measure just, is much used by exporters of woolens. A simple wooden arm is used to introduce a printed ribbon of tough paper marked in yards and meters between the folds of the fabric as it is being rolled by hand at table. The workman automatically draws ribbon from the coil as he rolls. The zero mark is left showing at the beginning and the ribbon is conterminous with the cloth. A wooden arm, fitting with pegs to the table, and having a recess to contain the coil of paper is the entire outfit, if one excepts the ribbons, which have to be bought from the patentee of the system. Beyond gainsaying, this record of the measurement has helped materially to abate claims for "shorts."

This latter system is not available for goods that are to be "cuttled"—as folding is called in Yorkshire—or "plaited" as the same process is called in Lancashire. More than one maker has devised to meet this case a cuttling and measuring machine, which occasionally is also a "rigging" machine, for folding in half double-width goods. The precise movements vary, but the general principle of all is to form laps or cuttles of 36 inches and the number of these gives the length in yards. Dyers and finishers measure woolens thus more often than manufacturers and merchants. As a rule the machine is more to be relied on in indicating the loss by shrinkage than in giving an unquestionable record of the exact yardage. A clearly defined fault of machines of this type is to produce earlier laps of about 35 inches and later ones of about 37 inches. On that account costly cloth is commonly pulled down the table as a preliminary to cuttling and measurment by laps most obtains in the cotton trade. It is no fault of the machines that indignant complaints reach Manchester of cottons plaited in 27-inch laps which invite acceptance by unobservant natives as yard measure.

HUMIDITY AND VENTILATION IN WEAVE SHEDS.

(Preliminary Report of the Investigating Committee appointed by the British Government.)

So strong was the feeling among the workers that steaming produced not only great bodily discomfort, but also injury to health, that in November, 1906, a ballot was organized by the operative leaders at the request of the operatives, the result being:

For the abolition of steaming	68,154
Against	3,094
Neutral	1,221
Total voting	72,469

The result is certainly convincing, and is supported, at all events as regards bodily discomfort, by the evidence taken by the committee.

So far as injury to health is concerned, the evidence does not prove direct injury to health, but inferences may be drawn and opinions formed as to whether from long continued work under conditions causing bodily discomfort, injury to health would follow.

It must be borne in mind that on all sides it is admitted that weaving conditions, especially when inferior yarn is used, are improved by the use of artificial humidity. The weavers are piece-workers and the total abolition of "steaming" would certainly in many places increase their labor and reduce their wages. This argument, apart from any other considerations, is indicative of the sincerity of the wish of the workers to dispense with artificial humidity.

In the United Kingdom there are about 1,030 humid and 1,636 "dry" cotton weaving sheds; seeing that weaving without artificial humidity is successfully carried on in about 61 per cent. of the factories and under conditions that, generally speaking, cannot be condemned, it seems reasonable not only for the workers, but for others interested in the question, to ask why artificial humidity should be introduced into any shed, and the answer, it would appear, lies in the fact that particular classes of goods of better quality are made in the "dry" sheds. The same classes, however, are manufactured in humid sheds, but it is asserted that without artificial humidity the superior kinds of yarn must be used, in order to obviate frequent breakages and delays caused by constant piecing.

Practically all recognized authorities are of opinion that the process of weaving is facilitated by the use of artificial moisture, except in sheds situated in particularly damp places or on damp soils, and prior to the introduction of humidity by modern systems, primitive methods, such as damping the floor, known as degging, placing of troughs containing water under the looms or wet clothes on the beams, were in common use, especially when dry winds prevailed.

Throughout the civilized world the practice of humidifying is found, and it is believed that in no country other than the United Kingdom is there any direct legislation limiting the amount of moisture. The manufacture of the class of cotton cloth, in the weaving of which humidity is specially necessary, forms a substantial part of the Lancashire trade. Many witnesses suggested that by the use of better material or improved sizing, the necessity for humidity would cease, but so long as there is a demand for low-priced material made with comparatively inferior yarn, so long will the supply be forthcoming from some source, and if not from this country, from others, to the detriment of British trade.

In order to form opinions as to the relative humidity required for successful weaving in places where different classes of goods are manufactured, in addition to the evidence taken by the committee and the observations made during their visits, statistics were prepared giving the mean monthly temperatures and humidities of certain humid sheds for 1906, compared with the outside temperatures and humidities for the same hours.

From the Home Office records, 31 typical sheds were selected; of these, 11 use light sizing (5 to 25 per cent.), 10 medium sizing (25 to 70 per cent.), and 10 heavy sizing (70 to 200 per cent.). Both the center and side readings are included, and the statistics

cover every month during 1906. The following deductions may be drawn from the tables:

(1) The relative humidity in sheds where heavily and medium-sized goods are manufactured is slightly less than where lightly-sized are made.

The following are the mean values for the year:

	6—7 a.m.			10—11 a.m.			3—4 p.m.		
	Light.	Medium.	Heavy.	Light.	Medium.	Heavy.	Light.	Medium.	Heavy.
Centre	79	75	76	76	72	73	74	70	71
Side	80	76	76	78	73	75	75	72	73

(2) The side readings indicate, as a rule, a lower temperature and a greater relative humidity, as would be expected from the shorter distance of the hygrometer from the walls and consequent effect of outside influences. Several exceptions to this, however, are found in the case of individual sheds, caused probably by artificial heat being conveyed through the walls from an adjoining boiler-house or other hot rooms.

(3) In the course of the day the absolute humidity and temperature increase almost invariably, while the relative humidity diminishes, indicating that the amount of moisture in the atmosphere is continually accumulating, while the temperature rises proportionately faster, so that the relative humidity decreases.

(4) The assertion, so often made, that the relative humidity inside the shed is less than that outside is true of the winter months only; during the summer the inside relative humidity is the greater, except in the early morning.

From the figures quoted it appears that the relative humidity in dry sheds is considerably lower than that generally found in humid sheds, the highest average being 68 per cent. for October for the readings taken between 7 and 8 A. M.

The statistics indicate that the relative humidity for heavily-sized goods is practically the same as for medium and light-sized goods. The only class of cotton fabric in the weaving of which artificial humidity is almost universally dispensed with, is colored goods, but even in this case, according to the evidence of John Taylor, joint secretary of the North and North-East Lancashire Manufacturers' Association, the weaving would be improved by artificial moisture which is only withheld on account of the risk of the colors "bleeding" into the gray ground. It was found that there is, practically speaking, no difference in the wet-bulb temperatures found in the sheds where materials with different quantities of sizing are manufactured.

After nearly twenty years' experience of work under the present legal conditions in cotton cloth factories, it is shown by the ballot of weavers, and corroborated by personal observation by the members of the committee and by the evidence taken by the committee, that, apart from conditions directly affecting health, what is now chiefly complained of is the discomfort caused by working in moist atmospheres at high temperatures.

The alleged chilling effect noticeable when leaving the hot atmosphere of the sheds is still the subject of complaint, but it is believed that this is due to perspiration and absence of evaporation causing dampness in the clothing worn, rather than to deposit of moisture in the clothing taken off, except when such clothing is kept in unsuitable places.

By the workers it is asserted that in addition to actual bodily discomfort, lassitude, want of energy and enervation result, it is commonly thought also that there is injury to health, but, as has been stated before, the direct evidence on this point taken by the committee does not justify any decided expression of opinion; inferences, however, may reasonably be drawn.

Among the medical witnesses examined, including several in local practice and others who have had previous experience of the districts concerned, the general opinion appears to be that since the introduction of the Act of 1889, the health of the workers has improved, this being due to better ventilation and less dust. Statistics relating to the weavers in Blackburn have been published by Dr. Alfred Greenwood, Medical Officer

of Health for the borough, which support this view.

It must, however, be remembered that the statistics on which these opinions are based include sheds of all kinds, in many of which excesive temperature and a high degree of humidity are not found, and it is not denied that moisture in excess and at high temperature produces discomfort and possibly eventual injury to health. In the course of the medical evidence also it was asserted that a dry shed, even with comparatively bad ventilation, is preferable to a humid shed conforming to the present nine volume standard.

The committee are unanimously of opinion that the discomfort and possible injury to health, complained of by the operatives, can best be met by fixing a maximum limit of wet bulb temperature, and by securing within the limits retained a difference between the wet and dry bulb temperatures sufficient to prevent the deposit of moisture, but considerations other than those of health and comfort cannot be ignored. For satisfactory weaving, according to the weight of evidence, the temperature should be about 65° to 70° F., and the relative humidity 78 to 80 per cent.; in order to retain this relative humidity without excessively raising the wet bulb temperature, the temperature in the humid sheds must in summer be considerably reduced, and it yet remains for the committee to determine by experiment or otherwise how far practical effect can be given to the cooling necessary to bring this about.

All manufacturers of humidifying plant have been communicated with and enquiries as to the best cooling methods have been made, not only at home, but abroad, and the replies received justify the committee in hoping that, without prohibitive outlay, the difficulty may be solved.

The committee finds that the efforts of makers of ventilating and humidifying plant and of manufacturers have been directed chiefly to the question of supplying to the sheds the desired amount of humidity, and at the same time keeping the air at the legal standard of purity, while little attention has been given to the problem of controlling the temperature of the shed in hot weather.

Various suggestions for dealing with this question have been considered by the committee, and of these the following are the chief:

(1) That the use of saturators should be introduced generally.

In sheds ventilated on the plenum system a matting saturated with water should be placed in the inlet channel, so that the air passing through to the shed would by evaporation of the water in the matting become cooled and saturated at the same time. The available cooling effect in any given case may be estimated by observing the difference between the dry and wet bulb temperaure of the outside air. This difference in the hot weather of summer is seen to amount to as much as 17° F. The following table gives examples of the readings of the wet and dry bulb thermometers on some of the hottest days during 1908 at 3 P. M.:

	Darwen.			Stonyhurst.		
Date	Dry.	Wet.	Difference.	Dry.	Wet.	Difference.
June 3rd	72.6	62.5	10.1	75.6	66.7	8.9
" 26th	70.0	63.8	6.2	74.0	66.7	7.3
" 29th	73.0	62.9	10.1	74.8	65.5	9.3
" 30th	71.2	57.9	13.3	74.0	60.1	13.9
July 1st	75 2	59.7	15.5	77.1	62.4	14.7
" 2nd	78.5	64.9	13.6	83 0	66.0	17.0
" 3rd	71 5	62.8	8.7	74.7	64.0	10.7
Sept. 30th	72.9	65.2	6.7	——	——	—

At present in sheds humidified by steam the ventilating apparatus is generally without this device, and this leads to the following result: The temperature of the shed rises during the day with the outside temperature. As this takes place, it being necessary to keep up the percentage of humidity for weaving purposes, more steam is introduced, and the introduction of steam tends to raise the wet bulb temperature still higher. By the method proposed, full advantage would be taken of the comparatively rapid rise of the dry bulb temperature during the day to humidity by a cooling process, the evaporation of water from the saturator.

Some experiments conducted by Wilkinson Hartley, a member of the committee in Albert Mills, Nelson, are encouraging in this respect, since they show that, by the use of a saturator, it was possible to reduce the

temperature of the incoming air by an average of 7.9° F. during July, and 6.4° during August.

Other similar methods depending on the evaporation of water or involving the use of refrigerating plant might also be suitable for the purpose of cooling the shed.

(2) Another evil to which attention must be drawn, is the practice of placing the air intake in the roof of the shed. The heat of the shed escapes at all times chiefly through the roof, and warms the stratum of air from which the inlet current is in these cases drawn. The hotter the shed, the hotter becomes this stratum, and as the warmest days are generally very still and free from air currents, this arrangement results in unduly heating the fresh air supplied to the shed.

Thus the experiments conducted by Mr. Hartley indicate that the excess of the temperature of the air in the inlet channel over the true shade temperature at 5.30 P. M. during July and August consisted on the average of 6.9° F., and amounted on the 14th August to as much as 22°.

The investigations carried out by William C. Jenkins, of the Godlee Observatory, Manchester, are confirmatory of the fact that the temperature of the air immediately over the roof of a shed is often far higher than the shade temperature.

If the inlet were so placed that the incoming air had the true shade temperature, great benefit would result.

(3) In the hot weather of summer it has been found that the early morning records of the shed temperatures are sometimes unduly high. Thus in one mill the records for two days were as follows:

	7 to 8 a.m.		10 to 11 a.m.		3 to 4 p.m.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
July 2nd	84	76	88	80	92	83
July 3rd	84	75	88	77	90	80

It is clear that during the warm weather the sheds are not thoroughly cooled during the night, and are even at the beginning of the day unduly hot; they therefore reach high temperatures earlier in the day than would be the case if they were cooled down as far as possible during the night.

Thomas Roberts, a member of the committee, has investigated this point in four sheds with different makes of humidifier, the object in view being to discover the relation between the outside and inside temperatures, and especially to find out the extent to which a shed cools during the night. Hourly records of the outside and inside wet and dry bulb temperatures were kept during the whole of one week, including Sunday; he shows clearly by diagrams that the curves representing the inside and outside temperatures during the night are roughly parallel, indicating that there is a constant difference between the two, and that the inside temperature decreases no faster than the outside.

At 6 A. M. the shed temperature is always about 10° higher than the outside, and it is probable that were this difference extinguished during specially hot weather—for instance, by ventilation of the shed during the night—it would be found easier to keep the day temperature within reasonable limits.

(4) The white-washing of the roofs should be more efficiently carried out and maintained. In many instances it was noticed that the roofs were white-washed in name only, and certainly not thoroughly enough to achieve the object aimed at.

(5) More attention should be given to the covering of the steam-pipes. In many sheds it was observed that the covering was in very bad repair, long portions of bare pipe being completely exposed. Apart from this the material of which the covering is made must doubtless be of great importance in minimizing the amount of heat involved.

It is felt by the committee that in order to bring about the requisite cooling in hot summer weather, it might be necessary to adopt all these proposed methods, but in the absence of actual observations on the mode in which these suggestions can be carried out, it is impossible to give recommendations in the practical form which is desirable.

Although steaming is the term generally used when reference is made to artificial means of humidifying, it must be clearly borne in mind that this system is by no means universal; it has been largely super-

seded by appliances for introducing atomized water into the sheds in place of steam, and frequently the same mechanism is used for the double purpose of ventilating and humidifying.

The infusion of live steam, though having little effect on the dry bulb temperature, raises the wet bulb temperature very considerably, and there is no doubt that this system of humidifying is the most unpopular among the operatives. As bearing on this point, two passages may be quoted from Dobson's "Humidity in Cotton Spinning," published in 1897:

> Live steam is exceedingly unpleasant to the persons working in the room, and, I think is generally admitted, very injurious to their health. It is therefore undesirable from every point of view, and, as proper conditions of the air can be so easily arranged in other ways, there would seem to be little excuse for a continuance of this practice.

Again, speaking of the Roscoe committee, he says:

> I may say that some of the witnesses did not object to the escape of live steam into the sheds. In this they may be right or wrong, but I maintain more strongly than ever that this method of damping is injurious, more costly than any other means, and not as desirable from a manufacturing point of view.

Of systems other than the introduction of live steam, the following have been witnessed by the committee in operation:

British—Dargue, Griffiths & Co., Ltd.; J. A. Hart; Hall & Kay, Ltd.; Manchester Patent Ventilating and Damping Machine Co.; Matthews & Yates, Ltd.; Mather & Platt, Ltd. (Vortex system); Haworth & Co., Ltd.; Parson Humidifier Co.; Pye's Humidifier Co.; Hygrofor Humidifier; Drosophore Humidifier.

From personal observation and from the evidence taken, it appears that greater comfort is enjoyed by the workers when a system of humidifying by atomized water, rather than by the introduction of steam, is in use. It is believed that by this system the excessive heat complained of in summer is to some extent reduced.

The committee is further of opinion that the white-washing of the roofs required by the Act of 1901 should be maintained more efficiently, so as to cover every part of the roof, including the windows, that it should be made compulsory for dry sheds as well as for humid, and that the period should be extended to the end of September.

In dealing with the ventilation of what are known as dry sheds, a long-standing difficulty has to be faced. In the districts of Burnley, Nelson and Colne, where these sheds chiefly are found, the introduction of humidifying with a standard of nine volumes of carbonic acid in 10,000 would, it is generally believed, be welcomed by the manufacturers, but the operatives have steadily refused to work in these sheds if artificial humidity is introduced. On this account it has been so far impossible to fix a standard of ventilation.

No evidence has been produced demonstrating the existence of exceptional ill-health among the workers in dry sheds; on the contrary, it is the opinion of some medical witnesses, with large local experience, that the dry sheds are more healthy than the humid.

The carbon dioxide found in these sheds in winter is, on the average, about 16.5 volumes in 10,000, but in certain exceptional sheds this average is very much exceeded, and it is desirable to legislate for such places.

The published statistics and the personal investigations of the committee show rather to their astonishment that the ventilation of dry sheds, as measured by the carbonic acid standard, is, generally speaking, much more satisfactory than was anticipated. It was supposed that, owing to respiration and lack of efficient ventilation, the proportion of carbon dioxide would reach far higher proportions than investigation has disclosed, the actual average for the winter months being 16.5 volumes in 10,000. On the other hand there are numerous sheds that show a consistently high proportion, and there appears to be no sound reason why a standard of ventilation should not be required in dry sheds as well as in humid.

(To be continued.)

The production of wool in the German Empire is decreasing annually. In 1861 the number of sheep in round numbers, was 28,000,000, while in 1900, it had fallen to 9,692,500.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

DESIGNS FOR COTTON FABRICS.

BY J. W.

Fig. 1 is a honeycomb weave suitable for skirtings, the following being the particulars for its production: 36 dents per inch, 18s twist, 52 picks per inch, 12s weft. The design can be woven on 8 shafts by a dobby. Usually, dark grounds such as black, maroon, navy, dark green, etc., are used. For the stripes chiefly white and light colors suitable to the grounds. Such stripes as 28 ends black, 4 ends white are most effective.

FIG. 1.

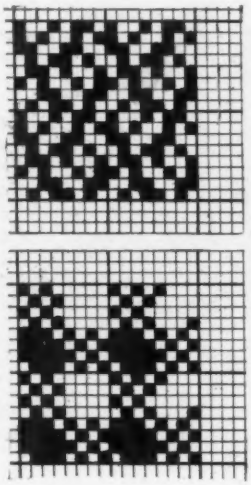


FIG. 2.

Fig. 2 is a crepe weave, very useful for various makes of cloth or as a ground weave for stripes, checks, and jacquard designs. For a new class of shirtings the particulars are: 32 dents per inch, 20s twist 64 picks per inch, 16s weft. The design can be woven

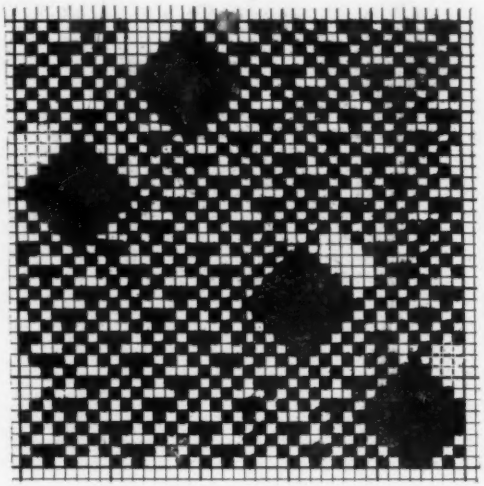


FIG. 4.

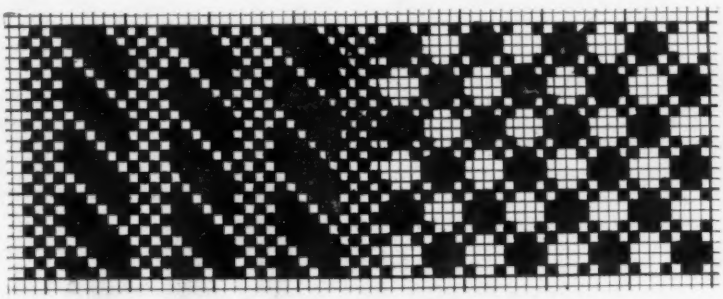


FIG. 3.

on 4 shafts. The styles of pattern most effective for this class are: 4 ends white, 4 ends blue; 8 ends pink, 8 ends white. For check patterns it is an excellent weave and very neat.

Fig. 3 is a mock leno and mercerized stripe. This class is becoming very popular for ladies' dress goods, and in some makes is used for fancy shirtings for summer wear. The mock leno gives an open or perforated effect, while the twill stripes which are mercerized cotton, shows the pattern to advantage. The particulars for its production are 32 dents per inch, 20s, 2/40s, 32s warp, 60 picks per inch, 14s weft.

Pattern.

32 ends white (mock leno) 20s warp.
4 ends white (plain) 32s warp.
6 ends blue (twill) 2/40s warp, mercerized.
4 ends white (plain) 32s warp.
6 ends blue (twill) 2/40s warp, mercerized.
4 ends white (plain) 32s warp.
6 ends blue (twill) 2/40s warp, mercerized.
4 ends white (plain) 32s warp.

66 ends.

The design can be woven on 12 shafts.

Fig. 4 is a jacquard pattern repeating on 40 ends and picks. The satinette spotting on the "oatmeal" ground is very effective. This design is intended for dress goods and is finding favor at present in mercerized goods to the following particulars: 40 dents per inch, 2/60s mercerized warp, 80 picks per inch, 2/60s mercerized weft. The colors for warp are black, red, sky blue, light green, heliotrope, etc., and must be picked with the same colors of weft.

Fig. 5 is a good style of stripe and figured effect. This design may be used in a variety of colorings. For stripes the broken twill effect may be used for color, leaving the plain ground and zigzag figure in white. For a good make in mixed goods the following particulars are suitable: 36 dents per inch, 32s Egyptian warp, 64 picks per inch, 2/40s spun silk. By using various colors of warp and weft, and by altering the various sizes of stripe a good variety of patterns may be produced.

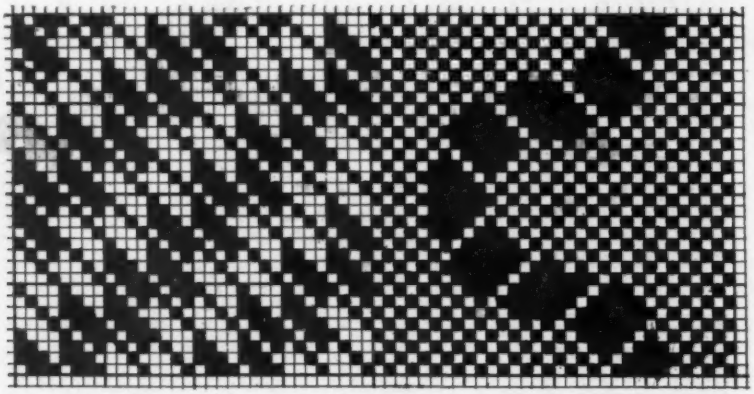


FIG. 5.

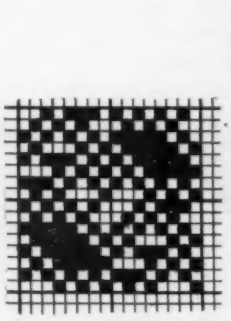


FIG. 6.

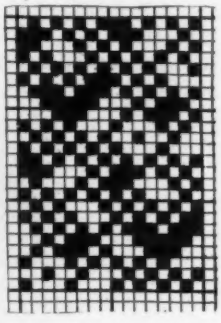


FIG. 7.

Figs. 6 and 7 are broken effects and are very useful as grounds for larger designs, or for stripes and checks in zephyr makes of cloth. The particulars for these are: 40 dents per inch, 40s warp, 72 picks per inch,

32s weft. These broken effects are likely to become popular in another style of cloth: 32 dents per inch, 24s warp, 52 picks per inch, 10s pin cops. The colorings for ground are cream, light pink, light blue, etc., with white, fawn, black, etc., for the stripes.

Fig. 9 is a jacquard effect on 80 ends and

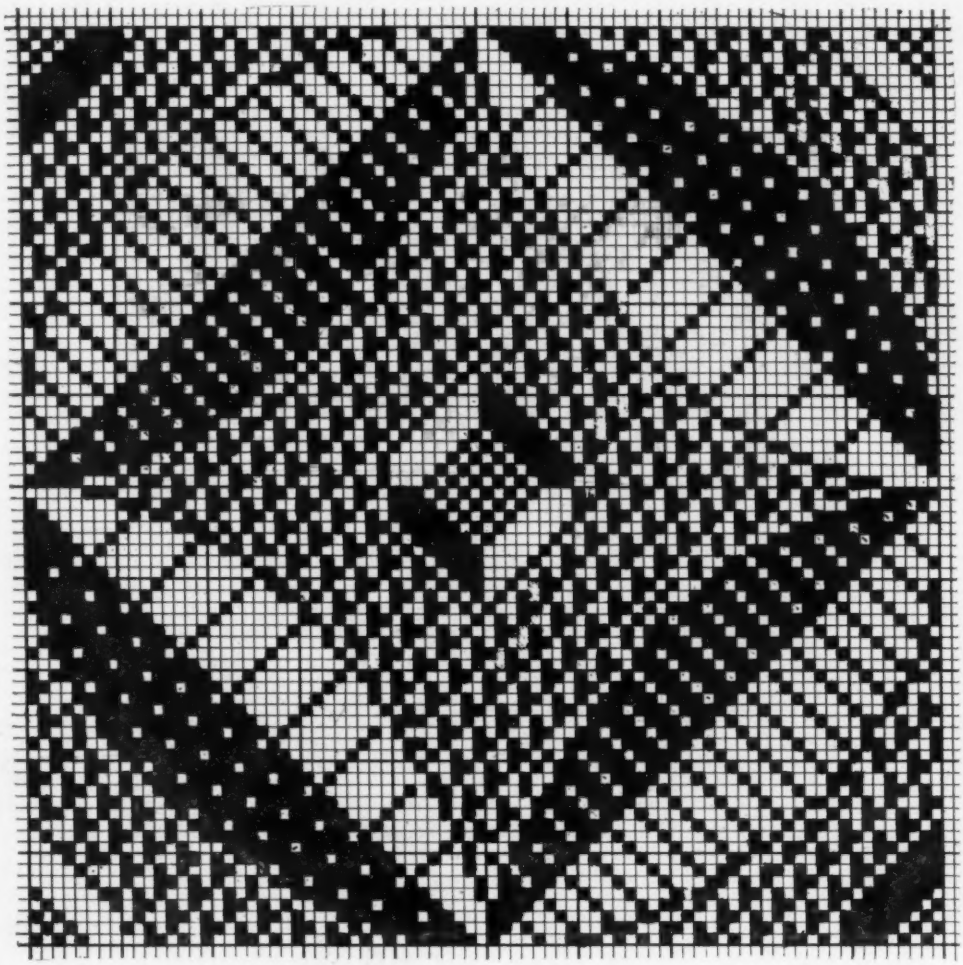


FIG. 9.

Such styles are 32 ends cream, 16 ends blue, are useful. After weaving the cloth is raised flannelette on one side only.

Fig. 8 is a novel effect and may be woven on 18 shafts by drafting with a centered plan. This make of cloth is woven grey, bleached and mercerized in the cloth, afterwards being printed with small spots of various kinds and of various colors. The particulars for production are: 44 dents per inch, 40s Egyptian warp, 72 picks per inch, 26s Egyptian weft. This class of goods are in great demand and when mercerized and afterwards calendered resemble silk to a great extent.

80 picks to a repeat. This class of work is well adapted for the layout of Fig. 8. For heavier makes such as coverings, the following is a good make: 40 dents per inch, 3/30s warp, 68 picks per inch, 3/20s mercerized weft. This cloth is effective and rather heavy, but for various domestic purposes is very useful. In many cases this cloth has been selected against tapestry, being much cheaper and very lasting.

THE ROUBAIX WORSTED TOP EXCHANGE.

[Early in 1908 the editor of the Textile World Record wrote to the American consul at Roubaix, France, asking him to prepare a report on dealings in worsted top futures on the Roubaix Exchange. At that time a commission appointed by the French government was engaged in investigating the methods of the Roubaix Exchange, against which charges of serious irregularities has been brought for years. The following report by Consul Joseph E. Haven is in response to our request.—Ed.]

report to the minister of commerce and labor, the gist of which is as follows:

It remarks that in France the wool industry in general is hostile to dealing in futures, pointing out that it is in itself a dangerous game, causing a serious reaction in business, and further, that it is not appropriate to the commercial requirements nor to the manufacturer on account of the fluctuation in allowances or reductions (giving as much as

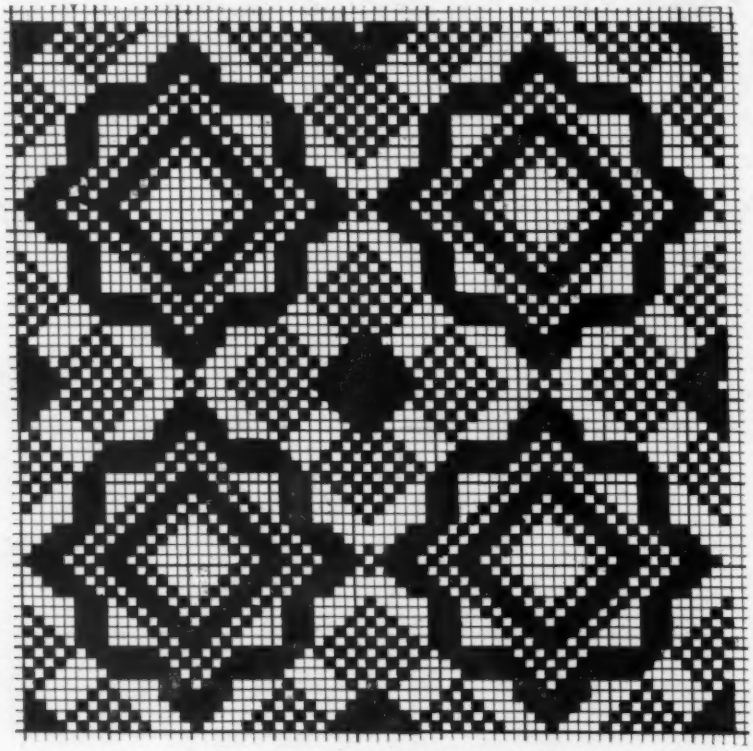


FIG. 8.

The commission composed of several members of the French Parliament and presidents of the principal chambers of commerce of France, appointed by the minister of commerce and labor to study the question of top futures (marches a terme) for combed wool, has held several meetings under the presidency of M. Dron (deputy), and has paid a visit to Roubaix and Tourcoing in order to study the working of these markets, which have of late been under severe criticism. The commission has lately referred a

10 per cent. of the value, according to regulations allowed for delivery). This statement seems to explain that the sales followed by delivery are relatively small in proportion to transactions in general, and on the other hand that there exists a great difference in prices between merchandise sold for cash and that on time.

The commission points out that this hostility against futures has shown itself in wool centers other than Roubaix and Tourcoing, but that in these two cities where this

market is centered there also exists an opposition to their suppression among a large number of importers who work to produce the instability in quotations and the insecurity in transactions. Some of the combed wool manufacturers have of late declared themselves hostile to dealings in futures, whereas formerly they were in favor of its maintenance. Nevertheless, two combing establishments in Roubaix are trying to stop the suppression of futures at Roubaix, Tourcoing and Antwerp.

The commission remarks that from the documents they have obtained and from discussions on the subject they find nearly the entire wool industry considers the organization of a futures market at Roubaix and Tourcoing only as necessary evils. They regret the existence of a similar market at Antwerp and hope that the Belgian Government will suppress it in order to hasten the downfall of the markets at Roubaix and Tourcoing.

In regard to the legal administration of dealings in futures the commission makes note of the communication of the minister of commerce based on a study of the subject made by the president of the Tourcoing chamber of commerce. It states in part that the time markets are under the control of the chambers of commerce, which in turn are alone responsible to the prefect of the department, who has the power of regulation and inspection. After taking the advice of the tribunal of commerce and the syndicate of sworn brokers the chambers of commerce propose to the prefect such changes in regulations, etc., as may be needful. He will then stipulate the necessary measures to assure in exact conditions of sales, the declaration of quotations, the merchandise for which quotations have been established, and the day and hour when the declaration will be made.

It is estimated that, in and around Plauen, there are altogether from 50,000 to 60,000 workpeople wholly or partly dependent upon the lace and embroidery industry, and that from 2 1/2 to 3 million pounds' worth of lace and embroidery are produced in the district in the course of a year.

SILK THROWING.

BY JAMES CHITTICK.

The word "throwing,"[1] as applied to silk, is derived from the old Anglo-Saxon verb "thraw," meaning to whirl, to spin; thus the word in this connection refers to the spinning or twisting of silk.

Individual filaments of raw silk, as reeled from the cocoons, are many hundreds of yards long, and, as the filaments, wet from the warm water in which the cocoons are floated during the process, are reeled off, they lie side by side and so, being then somewhat glutinous, they stick together and, when dry, present the appearance of a homogeneous thread, which, however, is far from being the case.

The cocoon filament, as it is emitted by the silk worm, is a double strand and several of these are reeled together, the number depending on the size of thread desired and the thickness of the cocoon filament.

In practice three cocoons make about the finest size of silk that can be commercially used, while the great bulk of the product is reeled from about five cocoons, the same making the size known as 13/15 deniers. If a thread of this was moistened and opened up there would therefore be found about ten individual fibers, as each of the cocoon threads is double.

The bulk of the world's raw silk is now reeled into skeins of a standard circumference and of a convenient weight. A large portion of the product is also Grant reeled, that is, reeled with a very quick traverse so that a broken end cannot get lost in the skein. This standardizing of the size of the skeins, together with the Grant reeling, is a great help to the throwster.

When the skeins are not of regular size, or when the silk is reeled into the very large, old-style skeins, different swifts must be put on the winding machines to accommodate them, which is very troublesome even if there is room for doing it. Thus irregular or badly reeled silk, or skeins of unusual size will make the throwing of it much more expensive, and there will be a marked increase in the waste made.

Raw silk can be used just as it is received in a limited number of fabrics, as, for in-

stance, in the warps of piece-dyed cotton-back satins, etc. It will be evident, however, that for skein-dye it would be quite impossible to use it so, as the boiling would mat it up inextricably. Before the dyeing process, therefore, it must be twisted, and this twisting process is called throwing; the one who does it is called the throwster.

This business of throwing requires special knowledge, a considerable plant of expensive machinery, and a relatively large power plant. On this account it has grown up as a separate business, about two-thirds of the silk used in this country being thrown on commission. The usual practice is for the manufacturer to buy his raw silk on contract from the silk importer. On arrival, it is ordered to be shipped direct to the throwster. The latter ships it away in lots to the dyer as the throwing proceeds, and he in turn after dyeing it sends it back to the manufacturer. It is proper for the throwster to make a clearance, as it is called, of each lot as he finishes it, and not to allow succeeding lots to be run in together. This is to enable the manufacturer to see just what has been returned from each lot sent.

At the end of each month the throwster usually sends his customer a bill for the lots thrown and shipped out by him during the month, and it is customary for the manufacturer to pay for same within ten or fifteen days thereafter.

The charge made for throwing is graduated for tram by the number of threads twisted together, and for organzine by the size of the raw silk thread. Though silk of superior grades costs less to throw than poorer silk yet, very illogically, no allowance in the throwing price is ordinarily made for this.

Silk varies much in character, cleanness, strength, elasticity and other qualities; it varies greatly from season to season; the product also of the various reeling establishments or filatures, differs in merit. Summer reeled silks are superior to spring reelings of the same grade. Silk is also classified so that there are quite a number of grades or qualities to be dealt with, varying sometimes only a few cents in value.

These differences will make a certain grade of one year perhaps equal or superior to a nominally higher grade of another year, and it is very often a question as to just how a particular silk should be classified. On this account it would be hard for throwsters to fix their prices according to the grade of the silk, though efforts are being made towards that end.

The throwster partially protects himself against customers who habitually send him poor silk by raising all prices on those customers or declining their work. If by chance some lot from a regular customer turned out very bad the throwster would complain of it and try to get a special price to cover the increased expense on that lot.

Current prices for throwing have lately been about 65 cents a pound for two thread 13/15 denier organzine, with 5 cents more for 12/14, and 5 cents less for 14/16 size. For tram about 35 cents a pound for 4, 5 or 6 thread, 37 1/2 cents for 3 thread, and 40 cents for 2 thread. These prices will vary according to circumstances, but owing to increased labor and fuel costs prices are more likely to be higher in the future than lower.

For the benefit of those who do not know the precise meaning of the words "organzine," and "tram," and many do not, it may be well to explain them here.

After being dyed the material for warp has to undergo the processes of winding, warping, drawing or twisting and weaving. In the loom it is under heavy tension and also has to stand the chafing of harness, reed and shuttle. It is obvious that to withstand all this it should be a very clean, smooth, well knit and homogeneous thread. It is customary, therefore, for this purpose, to take the single raw silk threads (composed of several cocoon filaments) and twist them well, 16 turns to the inch being a customary twist. Two or more of these twisted threads are doubled together and twisted, say 12 to 14 turns per inch, in the reverse direction. Silk so treated is called "organzine."

For filling not only does the silk not have to undergo the friction that the warp does, but it would be very undesirable to twist it

much, as the goods would then feel thin and sheer, whereas it is desirable to have the silk full and lofty so as to give the fabric as much hand as possible. The single thread, therefore, is given no twist at all, but two or more threads, generally three to six, are doubled together, and have then 2 1/2 to 3 1/2 turns of twist per inch put in. This is sufficient to hold the silk together in the dyeing and weaving, and at the same time leaves the thread full and open and so that it fills the cloth properly. Silk so prepared is called "tram."

(To be continued.)

ENGLISH NOTES.

From our Special Correspondent.

Not much trade revival shows as yet and the best heads in the textile business look for no remarkable change before August. Bank clearings improve weekly and textile failures, though rather plentiful, are small. Profits are bad in cotton and lean in wool and affairs have so shifted round that individuals who did well last year are doing badly now. Such improvement as exists is shared among a great many people, but it can be taken as true that cotton weaving is more remunerative than spinning, and worsted than woolen. The erection of a new mill to spin waste silk in Brighouse is perhaps the first addition in twenty years. Linen manufacturers are reluctant to go forward with any changes involving expense.

* * *

The poor financial results produced by certain of the textile combines are set down in the lump to bad trade. English experience is that bad trade means more in loss of profit than it did before the era of high specialization. A little less turnover used to spell a little less profit and now means no profit at all. Company presidents are not quite frank on the point, because they are slow to give information that rivals would read. But when one works makes $50,000 more in one-half year than another, when a concern loses money one year and makes $75,000 the next, and when several concerns—branches of a single combine—make $10,000 to $15,000 instead of the usual $100,000 to $150,000, and all without any material change in prices, the effects of lessened production are evidently serious. We rely more and more on a full pressure of orders, and especially in the finishing department does slack work cost much the same as full work without producing income enough to meet the outgoings.

* * *

To some extent, also, competition has shifted the basis of profits. Manufacturers who used to break the back of their expenses by producing plain goods now have to look to difficult fancies for their profits. Dyers who dyed blacks and blues for money making and light colors only for the necessity of keeping the business together, have now to make the more risky and expensive work their mainstay. Whether they have to redye once or twice to get the exact color, or have to put up with rejections and claims, the effect is the same in dollars and cents.

* * *

It is agreed by this time that the popular worsteds for wear in spring of 1910 are to be greys, striped. On that understanding Huddersfield patterns are being designed in every tone of grey and with every kind of stripe and shading in hundreds of ranges. One or two mills are taking a lesson from the Scotch and introducing more daring combinations into their assortments. The correctness of Huddersfield taste is an old story, but the unbroken level of quiet styles makes ranges monotonous and a touch of "devil" here and there is counted on to produce some good and new results.

Says one manufacturer who is introducing a few eccentric styles into his collection, "I shall be satisfied if I don't sell a piece of one of them. They are brought in for variety, to leaven the lump."

A competent American designer's comment on the patterns of an English worsted mill was that all were good, but that three-fourths of them needed throwing out because they were too near alike. He judged from American conditions. We have mills which are run on large orders and few designs, but an infinite diversity of style even without marked differences between them is indispensable in the best trade.

A commission weaver makes merry over a letter received from a manufacturer from whom he was receiving work. The letter expresses a regret that the pieces being delivered are not carefully overhauled after leaving the loom and asks for a caution to be given to the "taker-in." It was unfortunate for the sender of this communication that not a single piece had then been woven or delivered. There have been worse mishaps in textile history. Claims for short weight have been received on skips of filling invoiced but not delivered and the claimant has been induced to give all manner of particulars as to his own weighings before the damning proof of his truthlessness has been brought in. Then we have the man who cancels for late delivery pieces that he has accepted and paid for and who writes menacing letters about the goods he has omitted to order. These incidents infuse a little cheerfulness into trade.

* * *

Sulphide black dyeing is responsible for a pretty trade difficulty. It happens rather too often that the cotton warp when redyed rots in the cloth some time after leaving the piece dyer. Sulphide-dyed cotton stripes in dress goods have been especially affected. A committee formed to apportion responsibility for these disasters has dissolved in vain. The dyeing members proposed that warp dyer, piece dyer, manufacturer and merchant should each support one-fourth of the eventual loss. The latter two parties protest that dyers cause the damage and must arrange to liquidate it themselves. Warp dyers and piece dyers come to no common understanding and so the position of the holder of tender goods is anxious and uncertain. A form of tenderness very detrimental to the establishment of a household trade and reputation is observed in cotton prints. White spots printed in discharge upon indigo form holes in the fabric after a few washings. The character of the discharge compound is held to blame.

A warning is offered by a finisher against the risks of trouble from tenter clips. A lot of mercerized poplins at 75c. have been charged to the finisher on no better ground than that the fabric had been bruised white by the clips at regular intervals in two lines not extending more than one-eighth inch into the piece.

* * *

Local rag dealers have a regular business now in the production of new tailors' clippings. Superior garments coming into their hands are washed in boilers provided for the purpose and examined carefully for cap lengths. Suitable pieces showing little wear are cut out and sold to the cheap cap maker. The others make passable "new" clippings and it is possibly due to this process of conversion that new patterns occur in such abundance in Batley and Dewsbury warehouses. Various small rag merchants in the woolen-mill area handle little else than new or quasi-new cloth cuttings.

* * *

A comparison of English and American wages per week in the mohair trade is made possible by figures supplied on the one hand by Joseph Benn & Sons of Greystone, R. I., and Mitchell Brothers, spinners and manufacturers, Bradford, on the other:

Mohair and Alpaca	Bradford	Rhode Island.
Overseers	$7.75 to $8.25	$15 to $16
Spinners	2.75 to 3	5 to 7
Weavers	4.25 to 5	10 to 13
Sorters	7.75 to 8	16

Miscellaneous mohair business is rather better, but attempts persistently fail to make mohair dress goods sell in the cheap trade in this country. How bad mohair business has been can be judged by Tom Mitchell's statement that for the first time in fifty years his firm had run four days a week for five months together during last year.

Nothing is known to have materialized yet, but the idea of combining mohair with silk, wool or mercerized cotton to make tropical suitings has been thought over by good worsted makers on the lookout for a novelty.

* * *

A good numbr of cork rollers have been fitted into washing dollies in England. A maker of 11-oz. tropical worsteds likes their

gentle milling action and their freedom from any tendency to bruise the fabric. Linen tablecloth makers who have used rubber, paper and cotton rope as coverings for the intermediate bowls of calenders and who have suffered a heavy loss from cut cloths, see a prospective saving in the use of cork. These cuts arise from folding or crimping, are disguised by the starch and show only after washing. A Belfast firm puts by a reserve of $10,000 a year to meet these claims for damage.

In a cork dolly roller recently taken down there were found imbedded harmlessly a darning needle, bent to the shape of a hair-pin, and a sharp-edged piece of broken glass.

CARDING COARSE WOOL AND SHODDY.

BY GUNNAR NILSSEN, Aalgaard pr. Stavanger, Norway.

Owing to the large amount of foreign matter, sand, straw, etc., usually found in the wool, it will be necessary to have a dusting machine or shake willow in the picking room. No stock of this description is easily treated and as a rule thoroughly cleaned in the shake willow. Matted wool will also be improved by being put through the shake willow, making it easier to mix with shorter material. A tenterhook willy should be employed as a mixing picker, and in order to save the staple it should not be set so close as on fine, short stock. If long and short stock are blended, the batches must be laid out very carefully. Inequalities in the yarn, resulting from careless or faulty manipulation in the picking room, are more apt to show up on coarse stock than on fine.

Coarse wool will naturally need more oil than fine wool. If a mixture of one-third oil and two-thirds water is used, 20 to 25 per cent. emulsion should be put on the the wool. It is advisable to use an emulsion made up of one-half oil and one-half water on coarse stock, and then a proportionally less quantity will suffice. It is also advisable to use a thicker oil on this kind of material, than the thin, olive oil used on fine wool. On oily shoddy and waste it is of course not necessary to use as much oil as on dry stock. This kind of material is as a rule easy to open up, and for general purposes a set of cards consisting of a breaker and finisher should be sufficient. Care should be taken not to overdo the carding,

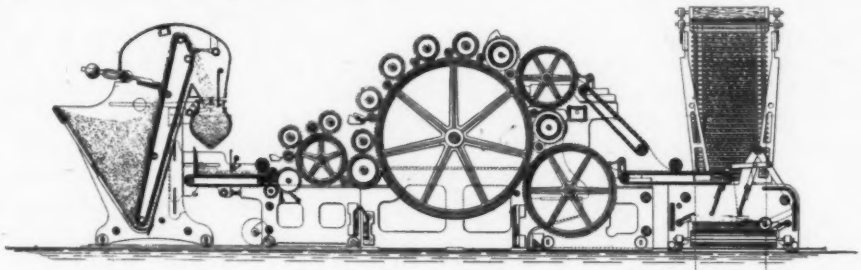


Fig. 1.

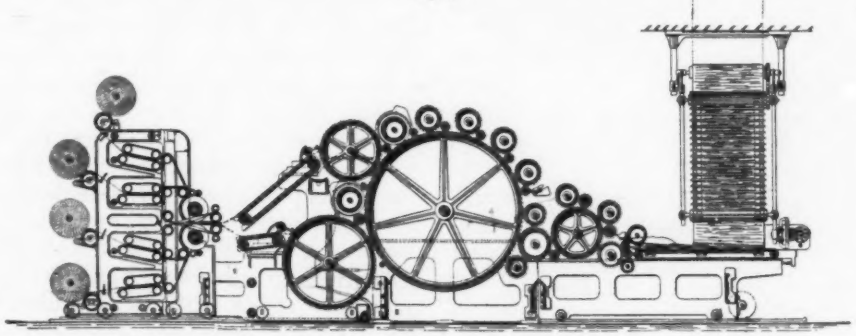


Fig. 2.

as the manufacturer will be losing in two ways, first in cost of production and second in producing a yarn of less value. There is also a third reason for not employing more carding surface than necessary, to avoid increasing the amount of card waste.

On two card sets a breast, consisting of a cylinder and at least two pairs of workers and strippers, should be attached to the breaker. In some cases it has been found advisable to attach a breast to the finisher. Two card sets are of course best adapted to batches of one color. If mixtures are carded the work in the picking room must be done very carefully.

A three card set is of course better and in some instances necessary for mixtures. In order to save the staple it is the practice in some spinning mills to lift some of the workers up a little, say one-sixteenth to one-eighth inch. By doing this only the largest lumps will be engaged by the raised workers, and a proper amount of the work left to the others.

Cards that are run on coarse stock should be supplied with the "blamire" or broad band feed. Every card in the set should be equipped with at least two pair of feed rollers, or one pair of feed rollers and a tumbler. If only one pair of feed rollers, giving the wool direct to the swift, is employed, as is often the case on cards for short, fine material, strong wool, which is easily electrified, is liable to be pulled through the feed rollers in lumps. Grids or plate coverings under the swifts are of course even more useful for coarse than for fine wools. Larger diameters of swifts and doffers, and greater space between workers is to be recommended on cards for long wool.

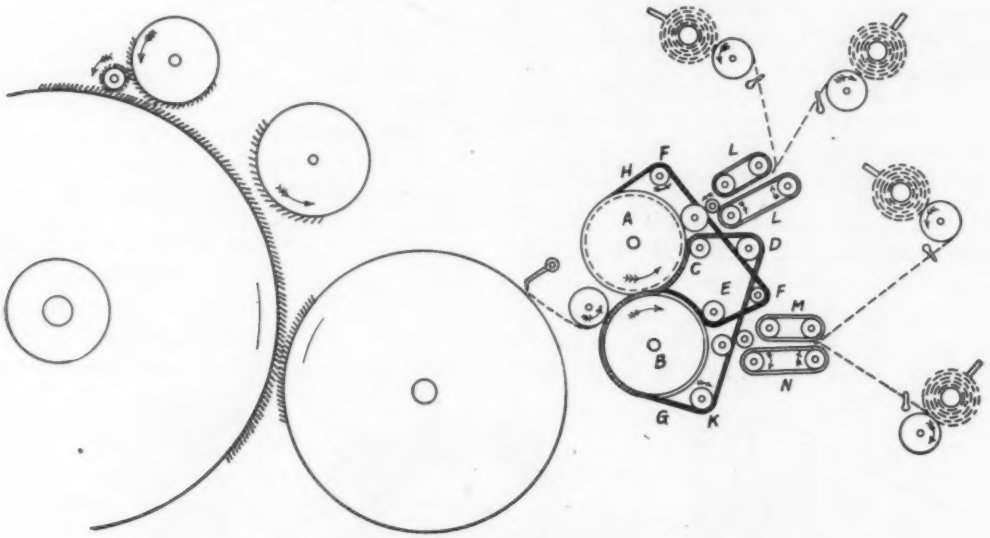


FIG. 3.

Besides the differences in the appliances employed for conveying the material from one card to the next one, the chief difference between cards for fine and for coarse wool lies in the card clothing and the speed. It is hardly necessary to point out that coarse wool requires coarser clothing and lower speed than fine wool. There will also be come difference in the construction of the condenser, and to this I will refer later. A set of woolen cards can, of course, be used on nearly all of the materials used in the woolen trade, especially if the machine is what is sometimes called a universal set of cards. But if the best results as regards both quality and quantity are to be obtained the requirements of the different kinds of material must be taken into consideration. I will now describe a special card for the work

in question, or rather a card not only for the carding of the coarser wools and shoddies, but chiefly adapted for the carding of short stock for low counts. This is the so called two doffer card which should not be confounded with the old double ring doffer card, as this card works with two doffers and two fancies, and a whole film of wool is taken off from each doffer. The two films are taken away by lattice aprons and doubled before passing into the feed motion or condenser.

It is generally thought that this invention is of a rather recent date, but this is not the case. The idea to take two or more films of wool from the swift, is more than fifty years old, and has also been practiced in woolen mills for that length of time. Two doffer cards have moreover been in practical use in flax carding for tow spinning for more than fifty years.

The general introduction of the two doffer card in woolen spinning dates back from the early eighties. The introduction of this card in wool spinning was, however, not a success at first, as promises with regard to production were made which could rarely be fulfilled.

It must be taken into consideration that the efficiency of carding, that is the ability of the card to open up and equalize the mixed up and crossed fibers fed into it, is not increased by the two doffers. The fact that by the two doffers and by the taking off of two films of wool, the cylinder is kept cleaner and less fibers are left on the surface of the card wire, makes it possible to feed a layer of new fibers into the card at a higher rate of speed than on the one doffer card. The cylinder is better cleaned by the taking off of the second film of wool, and this allows the cylinder at all events to take up more new fibers, but this greater amount of stock has to be sufficiently opened up and carded out in order that a good, round yarn may be produced. This work is done by the workers, and as these are of no greater number, and the working parts are about the same as on the usual one doffer card, it is plain that the carding power of the two doffer card is no greater than that of the common single doffer card. This goes to show that the greater production of the two doffer card, that is, the working of a thicker layer of fibers, is only possible when the material does not need a very thorough carding, as is the case with clean, open material, or with yarns where the claims are not very exacting as regards a thorough carding of the stock.

There is also another point to be taken into consideration. The two doffer card does not possess the same adaptability to the spinning of varying counts of yarn as the single doffer card. It is not possible to card for as great a range of counts as on the last named card. When trying to spin a fine count on a pitch for medium counts the films of wool, especially the lower one, will get too thin and full of holes, resulting in an unserviceable roving. In this case the card will have to run with only one doffer. There is also a liability of getting into trouble if mixtures made up of different kinds of material are carded on the two doffer card. The two films will as a rule not turn out alike, the first doffer taking the fibers sitting on top of the card wire, and the second doffer taking the better carded stock. When these two films are doubled and divided into strips, the roving is apt to get streaky. It is also necessary in cases of this kind to work with only one doffer.

It will be understood from the foregoing description that the two doffer card is not adapted to all kinds of work, but that its use is rather limited. The two doffer card is a special machine that will fully justify the advantages claimed for it only in certain cases, but then in a superior manner. Among the advantages of the two doffer card is the fact that there is less stripping with this card, and that it consequently turns out more uniform yarn.

Figs. 1 and 2 show a set of two doffer cards. This set of cards consists of two machines only and is especially suited for coarse yarn from low stock. The breaker is equipped with automatic feed and a breast, consisting of a cylinder and two pairs of workers and strippers. There are five workers, which is the highest number generally put on the two doffer card. There is one doffer of smaller and one doffer of larger

diameter. Some makers claim that better results are obtained by using doffers of equal diameters.

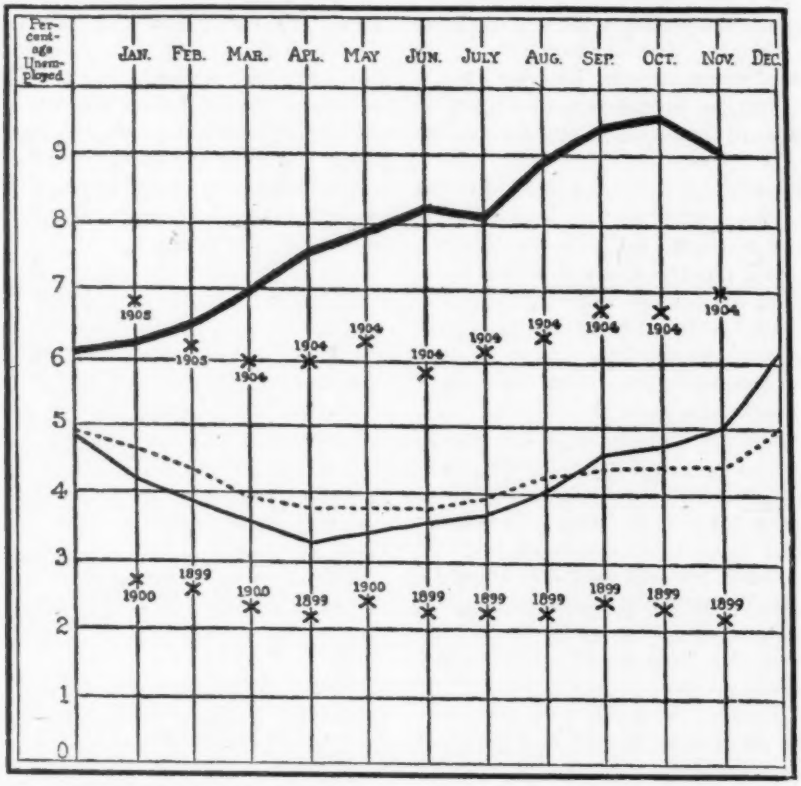
The usual practice is, however, to have the first doffer of smaller and second doffer of larger diameter. The automatic feed, as well as breast, broad band apparatus and frame supporting the two doffers can be disconnected and drawn out, in order to facilitate stripping, cleaning, etc. For the kind of stock generally carded on the two doffer card, either the broad band feed or blamire feed should be used. The set of cards shown in Figs. 1 and 2 is equipped with the broad band feed, transferring the material from breaker to finisher card.

(To be continued.)

THE UNEMPLOYED IN GREAT BRITAIN.

From the Manchester Guardian,

We reproduce from the Board of Trade "Labor Gazette" the accompanying chart,



showing percentage unemployed of members of trade unions which make returns to the Board.

The thick line shows the percentage this year.

The thin line shows the percentage last year.

The dotted line shows the average for the ten years, 1898-1907.

The crosses show the highest and lowest percentages which have been reached for each of the twelve months during the ten-year period. Thus the greatest number of unemployed in any January during the ten years, 1898-1907, occurred in 1905, when there was nearly 7 per cent. The smallest percentage in any January was in 1900, when the figure was under 3 per cent.

The percentage of unemployed at the end of last month was 9.1 per cent., as compared with 9.5 per cent. at the end of October and 5 per cent. at the end of November, 1907. It will be seen that the percentage of unemployed last month was considerably higher than in any November during the past ten years. The worst previous record during that period for a November was in 1904,

when the percentage was 7. Every month this year since February has been considerably worse than at any time since 1898.

The chart is based solely on returns furnished direct to the Labor Department by various trade unions which pay unemployed benefit to their members. Persons on strike or lock-out, sick or superannuated, are excluded from the figures. For November, 1908, the general and branch returns of unions related to 644,770 members in the following trades:

Building	62,041
Coal Mining	128,798
Engineering	155,130
Shipbuilding	59,037
Other Metal Trades	30,938
Textiles	97,085
Paper, Printing and Bookbinding	58,035
Woodworking and Furnishing	35,171
Miscellaneous	18,535
Total	644,770

AN IMPROVED WORSTED COMB.

An improved construction for a Noble comb, recently patented, makes it possible to employ three or more inner circles. This results in a greatly increased production, and it is claimed that the machine runs more steadily, making it possible to obtain a closer adjustment and reducing the wear of the parts. The comb is described by the inventor as follows:

Noble combs have hitherto been constructed with a driving shaft mounted above the carriage upon two pillars from which vertical shafts are driven by bevel gearing inclosed in boxes at the tops of the pillars. These pillars with gearing boxes at their upper ends and horizontal driving shaft carried between them make the removal of the smaller or inner comb circle difficult, as the gearing has first to be removed. They further restrict the machine to the use of two inner circles, whereas in the new machine three or more inner or smaller comb circles can be employed.

Fig. 1 is an elevation along the line, x-x, Fig. 3, showing one combing head. Fig. 2 is a half sectional on the line, y-y, Fig. 3, showing the carriage drive gearing. Fig. 3 is a plan, showing the device.

The outer carriage, A, the outer comb circle, B, the upright or frame, C, for supporting the same, the outer drawing off rollers, D, the sliver box, E, and the inner drawing off rollers, F, are all constructed in the ordinary way. Inside the outer carriage, A, and outer comb circle are mounted three inner carriages, G, and inner comb circles, g, each working separately in conjunction with the outer comb circle, B. The inner carriages, G, are mounted upon a three armed

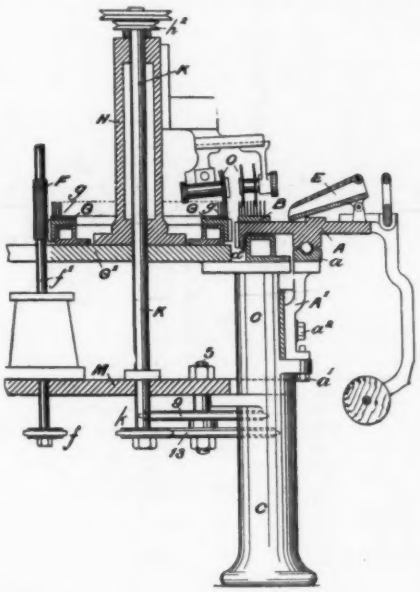


FIG. 1.

bracket, one on each arm, the bracket being bolted to the uprights or frame, C. Upon each arm of the bracket, G^1, is mounted a hollow pillar, H. As the pillars have no gearing at the top they are much shorter than in the ordinary combs. The various parts of the machine are driven by a chain or other gearing beneath the plate, M, by which a regular and steady drive is imparted to the machine. The chain passes from the sprocket wheel on the stud around the sprocket wheels, 8 and 9, on the studs, 4 and 5. To each of the sprocket wheels, 6, 8 and 9, on the studs, 3, 4 and 5, a second sprocket wheel, 11, 12 and 13, is affixed, by

which the parts of each head or section are driven by the chains.

The gear plate, M, is of such a shape and size as to carry the driving gear and shafts necessary to operate three heads or sections with three inner carriages, G, and inner comb circles, g. If desired the plate may be made of a size and shape adapted for four or more heads or sections.

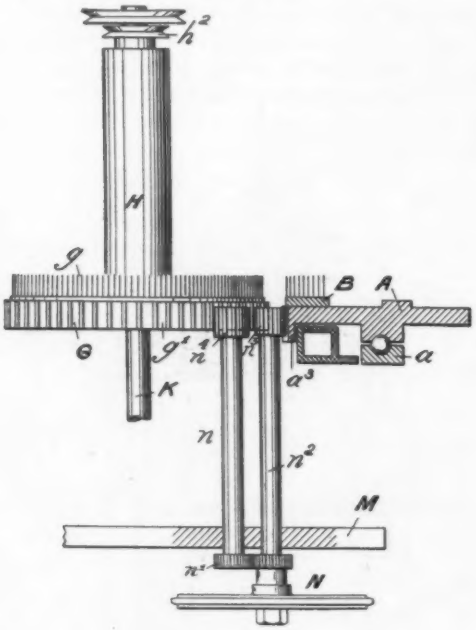


FIG. 2.

The carriages, A and G, are driven from the sprocket wheel, N, on the upright spindle, n^2. The outer carriage, A, is driven direct from the spindle, n^2, by the pinion, n^3, gearing with the rack, a^3. The inner carriage, G, with the inner comb circle, g, is driven from the shaft, n^2, through the gearing, n^1; by the pinion, n^4, on the end of the upright spindle, n, which gears with the rack, g^1, of the carriage, G.

The central spindle of the pillar is driven by the sprocket wheel, k, and on the top of the spindle is a pulley, h^2, from which the disks, O, are driven, which press the fibers between the pins of the comb circles, B and g.

The outer drawing off rollers, D, are driven by the sprocket wheel, d^1, and spindle, d^2, and the inner drawing off rollers, F, are driven by the sprocket wheel, f, and spindle, f^1.

It is claimed that by this construction of machine and arrangement of driving there is considerably less vibration in the operative parts of the machine and in consequence we are enabled to set the comb circles nearer to each other and the drawing off rollers nearer to the comb circles, obtaining a larger production and better quality. An important advantage is that several inner circle combs are driven in sections, one section by the chain, 14, another section by the chain, 15, and the third section by the chain, 16. Where four combs are employed the fourth is driven in a similar manner by a fourth chain. Should one comb be damaged

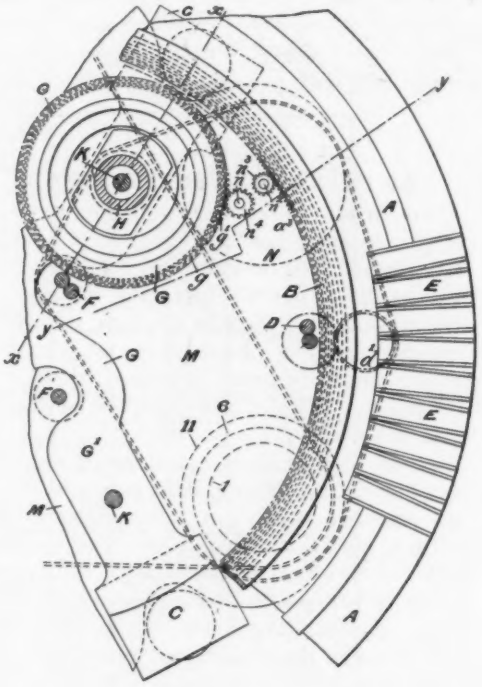


FIG. 3.

or become inoperative, it is not necessary to stop the whole machine, but by removing one of the chains one section of the machine can be stopped and the inner comb circle removed, while the others continue to work equally efficiently.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Wire Heddles.

Editor Textile World Record:

I would like information on the following points regarding German tinned steel wire heddles for fancy weaving.

1. What is about the average life of heddles made of No. 28 wire and used on No. 30 yarn?
2. Is it considered good practice to use heddles until they break or wear out?
3. If heddles should be discarded before they wear through or break, how am I to tell at what point it is advisable to throw them out and put in new ones?

We have been using wire heddles for about ten years, and so far as I know the entire equipment of heddles has never been changed, although new ones have been bought from time to time to replace those lost or broken. Our work where we use the heddles is not running as well as it should, judging by results we get from the same yarn running on the Draper loom with steel harness. It occurred to us that the trouble might arise from worn heddles. We have accordingly examined a large number of them under a magnifying glass and find that the solder is worn out from the bottom and top of the eyes, but the wire shows no signs of wear or cutting. Heddle (1040).

The so-called German heddle being a substitute for the old time cotton and worsted harness is naturally a little harsher on the yarn, but is the best of the metal heddles used in weaving, with possibly one exception. Two pieces of wire are used to form the eye. There is naturally a tendency for the yarn to wear the solder that is used to make a smooth eye and heddle, no matter how well the work may be done. Hard yarn with very little softening will shorten the life of a heddle, and with yarn of this kind a heddle will not last longer than a few weeks. On the other hand, if a soft yarn is used the heddles will last for years. The manner of fixing and setting the harness has a great deal to do with lengthening the life of a heddle. If the harness is too tight or too loose on the bar it will very often destroy the eye. The threads double up at the eye and this strain takes the life out of the heddles. Uneven setting of the harness frames will destroy the eye of the heddle sooner than anything else, and this in addition to having too large a shed is one of the most difficult features to be met with in the use of wire heddles.

It is not good practice to use heddles until they wear or break, as the drawing-in of warps is an item of cost in a mill, and it often happens through carelessness, oversight or accident, that warps are drawn in, taken to the weave room, started up, and then have to be cut out again, because of defective heddles. It is not always easy to detect a defective heddle and they sometimes can be found only by a small piece of the fiber clinging to the eye. It is a good plan to have a boy or girl examine all the harness before they are placed in the drawing-in frame, replacing all that are unfit for further use. A few good heddles may be discarded, but this is cheaper than having the smash piecer devoting several hours to replacing the heddles. Sometimes broken heddles will escape detection until they are in the loom, but if examined properly this seldom happens.

Practical.

Compensatory Duties.

Editor Textile World Record:

I want to ask a few questions regarding your tariff calculations in the January issue of the Textile World Record. Take for example E382, a cotton warp beaver. Please state the shrinkage of the grease wool and the price per pound scoured. Also the cost per pound of the cotton, shoddy and cotton warp, giving size of the cotton warp. Why do you value the goods at 75 cents per yard, which subjects them to a tariff of 44 cents per pound and 50 per cent. ad valorem? The foreign manufacturer can make the goods cheaper and invoice them at a price that will subject them to the lower rate of 33 cents per pound and 40 per cent. ad valorem. This would reduce the duty below 135.2 per cent. Gettysburg (1062).

"Gettysburg's difficulty arises from his confused ideas regarding the Dingley and actual protective and compensatory duties.

The prices of the cotton, wool and shoddy used in making the cloth have nothing whatever to do with the question. Neither has the size of the yarn anything to do with it. To make the matter clear to him we will begin by quoting from "How Much Wool to Make a Pound of Cloth?" in our February issue:

> The Dingley duty on wool of the first class is 11 cents a pound. The law assumes that because of the tariff the American manufacturer is compelled to pay 11 cents a pound more for the wool than it costs the foreign manufacturer. Accordingly a specific duty per pound of cloth equal to the duty on four pounds of grease wool of the first class is placed on wool goods valued above a certain amount, to compensate the American manufacturer for the increased cost of the material. This is legally supposed to leave the American and foreign wool goods manufacturer in the same relative position as would prevail under free trade in wool. For goods valued at 40 cents a pound or less the ratio is three pounds of grease wool to one pound of cloth. The medium and high grades of goods, however, come within the four to one classification, and, owing to the low valuation the specific duty on the low grade goods is higher, rated by value, than on the medium and high grade cloths.
>
> To protect the American manufacturer against competition with cheap foreign labor an ad valorem duty is placed on wool goods in addition to the compensatory specific duty already mentioned. The two constitute the system of compound duties, a combination of a specific duty to balance the duty on wool, with an ad valorem duty to protect the manufacturer.

Our January calculation was made in order to show the difference between the Dingley compensatory duty based on the 4 to 1 ratio and the actual compensatory duty required on various fabrics. To do this all that is necessary is to calculate the quantity of wool and shoddy required, extend it at the Dingley rate on these materials and compare the amount thus obtained with the amount of the Dingley compensatory duty. It is not necessary to calculate the amount of cotton required, as there is no tariff on raw cotton and, consequently, no occasion to compensate the manufacturer for any duty on that raw material. "Seneca" will understand why the shoddy was extended at 5 cents instead of 20 cents a pound (the Dingley duty on shoddy) by referring to this foot note to the January tables:

> It will be noticed that the "actual compensatory" is based on the amount of grease wool extended at 11 cents a pound and of waste or shoddy extended at 5 cents. This is on the assumption that the cost of wool in this country is increased by the full amount of the duty, which is not always the case. In the case of waste and shoddy 5 cents a pound has been allowed, because it would clearly be wrong to take the full amount of the duty, 10 to 20 cents, which in many cases is more than the total cost of the material in question.

The quantity of wool was estimated with a shrinkage of 65 per cent. in scouring. The valuation of the cloth was placed at 75 cents, because that was believed to be a fair price for the cloth under examination. It was explained in the February article, quoted above, that the 3 to 1 ratio on cheap goods resulted in a higher rate of duty than with the 4 to 1 ratio on more expensive goods. To give "Seneca" a demonstration of that fact we will make calculations for E382 at two valuations, 63 cents and 50 cents a yard.

10,000 yards E382 at 63 cents a yard.

Dingley Duty.	Duty.	%
17,500 lbs. cloth, 33c.	$5,775.00	91.6
50 per cent. of $6,300	3,150.00	50
Total duty	$8,925.00	141.6
Compensatory required	1,768.68	28
Actual protection	$7,156.32	113.6

10,000 yards E382 at 50 cents a yard.

Dingley Duty.	Duty.	%
17,500 lbs. cloth, 33c.	$5,775.00	115.5
50 per cent. of $5,000	2,500.00	50
Total duty	$8,275.00	165.5
Compensatory required	1,768.68	35.4
Actual protection	$6,506.32	130.1

A Small Spinning Mill.

Editor Textile World Record:

Do you think it would be advisable to start a mill to spin about 1,000 pounds of cotton yarn a week? We would not need a bleacher or dyer. Can you give some idea of how much floor space and what kind of machinery would be required?

Warner (1050).

A spinning mill for 1,000 pounds of yarn per week would not be advisable as the production is too small for profitable operation, because of the high cost of equipping and operating such a plant. It is possible, however, for this amount of yarn to be spun and twisted, i. e., the cotton may be purchased in the roving and a small equipment of spinning and twisting machinery could be installed to convert it into 2-ply yarn. Even this method would not be advisable in the case of warp yarn to be sized, as the necessary machinery would be able to turn out a much larger amount.

Bolster.

Number of Knitting Mills in the United States.

Editor Textile World Record:

Will you inform me how many knitting mills there are in the Southern States altogether and the number in each state? Dalton (1069).

The 1909 edition of the American Directory of the Knitting trade just published gives the number of mills in the different states as follows:

Southern States:		
Alabama	9	
Georgia	30	
Kentucky	2	
Louisiana	1	
Maryland	8	
North Carolina	65	
South Carolina	15	
Tennessee	27	
Texas	2	
Virginia	17	
West Virginia	4	
		180
Middle States:		
Delaware	5	
New Jersey	40	
Pennsylvania	529	
New York	338	
		912
New England States:		
Maine	9	
New Hampshire	26	
Vermont	10	
Massachusetts	95	
Rhode Island	21	
Connecticut	27	
		188
Central and Western:		
California	6	
Colorado	2	
Idaho	1	
Illinois	45	
Indiana	9	
Iowa	6	
Kansas	1	
Michigan	45	
Minnesota	13	
Missouri	5	
Nebraska	1	
Nevada	1	
Ohio	54	
Oregon	3	
Utah	13	
Washington	4	
Wisconsin	55	
		264
Total		1,544

The Wool Tariff.

Editor Textile World Record:

Is there a compensatory duty and also a duty of 11 cents on grease wool? I am ignorant as to the meaning of "compensatory duty" as I think many are. What is the duty or duties on clean wool imported? A simple and clear explanation of the present duty on wool would be appreciated by me and I think it is none too clear to a great many woolen manufacturers. Melton (1060).

The tariff on wool is as follows:

Class 1. Merino wools, 11 cents a pound.

Class 2. Coarse combing wools, similar to wools of English blood and mohair, 12 cents a pound.

Class 3. Carpet wools, 7 cents a pound if valued above 12 cents per pound; below 12 cents the duty is 4 cents a pound.

If wool of Class 1 has been washed on the sheep's back the duty is double, making it 22 cents. Wool of Class 2, washed on the sheep's back, can be imported without having the duty increased. The duty on scoured wools of Classes 1 and 2 is three times the duty on the grease wool. If carpet wools are imported in condition for carding, or if they contain 8 per cent. or less of dirt and other foreign substances, the duty is three times what it would otherwise be. The law assumes that because of the tariff the cost of wool to the American manufacturer is increased by the exact amount of the duty. The law also assumes that it requires 4 pounds of grease wool to make a pound of cloth. Accordingly a specific duty per pound of cloth equal to the duty on four pounds of grease wool of the first class is placed on wool goods valued above a certain amount, to compensate the American manufacturer for the increased cost of the raw material. This is legally supposed to leave the American and foreign wool goods manufacturer in the same relative position as would prevail under free trade in wool. For wools valued at 40 cents a pound or less the ratio is three pounds of grease wool to one pound of cloth. The

medium and high grades of goods, however, come within the four to one classification, and, owing to the low valuation, the specific duty on the low grade goods is higher, rated by value, than on the medium and high grade cloths.

To protect the American manufacturer against competition with cheap foreign labor an ad valorem duty is placed on wool goods in addition to the compensatory specific duty already mentioned. The two constitute the system of compound duties, a combination of a specific duty to balance the duty on wool, with an ad valorem duty to protect the manufacturer. The compound duty is applied to goods made of all wool and also of mixtures of wool and other materials.

The Matting of Yarn.

Editor Textile World Record:

We frequently have lots of wool or worsted yarn to be redyed. It happens sometimes that in the process the yarn will mat together into almost a solid mass, while at other times the yarn will take the stripping off process and redyeing and come out as free as when it went in. We are wondering if there is any trick which will prevent matting, that we do not know of. We have had two different lots of yarn which have been handled together, one of which will mat and the other come out all right. This would seem to indicate that there was something in the treatment which had been given the yarn in the first process of dyeing that induces matting. Possibly you can give us a solution for our difficulty. Of the two lots above referred to, one was bleached and the other dyed.

Webster (1063).

The chief cause of matting or felting is being handled too much by inexperienced help. The yarn should be scoured with a good oil soap and ammonia, which leaves it in a good condition. The scouring liquor should not be over 90° F., and the yarn should not be given more than three ends, if it has to be scoured out by hand. The second and third rinsing waters should not vary in temperature from the scouring liquor, as a sudden change of temperature will make the yarn feel harsh and take the life out of the fiber. The less friction the yarn is subjected to while wet the less tendency it will have to felt or mat. The matting of the yarn is often caused by the uneven friction of the fiber in either direction. It will be found when alkali or soap is used the yarn will have a greater tendency to mat than when a dilute acid is used. Yarns passed through a diluted sulphuric acid bath at about 2° Tw., extracted, dried and then rinsed, will not felt or mat in the dyeing. The only drawback to this method is that the colors will not come out quite as bright. I very often have yarns to be redyed and always treat them in this way. Acid colors should always be used for loose twisted yarns such as are used in the knitting trade, as they do not need any after treatment. For yarns that have to be dyed with fast colors, dyestuffs should be selected that will go on the fiber at a temperature of about 205° F. Prolonged boiling mats the yarn. Use wood extracts, such as logwood, fustic, etc. Yarns that are stripped and redyed will not mat as much as yarns that are not stripped before being dyed, as the stripping tends to prevent matting. Dryden.

Cloth Analysis.

Editor Textile World Record:

Will you please tell me where I can find out how to tell the number of yarn from the manufactured article, such as sheeting, lace curtains and laces? I refer to cotton yarns only. Quincy (1061).

The best method known for determining the count of yarn in a woven fabric is explained in "A Talk on Textile Arithmetic," which appeared in the June, 1908, issue of the Textile World Record. The method was explained for obtaining the count of the yarn as the threads lie in the woven fabric. In a question and answer, published in our August, 1908, issue, the method of making allowance for changes between the spun yarn and the finished cloth was explained. The problem in the case of lace curtains and laces is complicated by reason of the irregular form in which the yarn lies in the fabric. It is usually necessary in such cases to draw a number of threads from the fabric, measure and weigh them, and then determine the count by a simple calculation. Suppose, for example, that you drew 130 inches of yarn from the sample and found it to weigh 1 1/2 grains, the count could then be found as follows:

130 (inches) ÷ 1.5 (grains) = 87 inches per grain.

87 (inches) ÷ 4.32 (inches) = 20 (cotton count).

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.

THE KNIT GOODS SITUATION.

The situation from the manufacturers' standpoint may be best described by the statement that the average production of the knit underwear mills of the country is sold up to about October 1st. When it is taken into consideration that a year ago at this time manufacturers had only six to eight weeks' production sold ahead, it will be seen that the conditions are not as bad on the average as some individuals would have us believe. There are, of course, a few manufacturers who are not well fixed for orders and they are very active in their efforts to get business from the few straggling buyers who are now in the market, but on the whole the production of most of the larger and well known plants is under contract for a good part of the season.

There has been no increase in the capacity for the manufacture of men's fleeced goods and there are many who state that it will not be long before the demand for fleeces will be reduced to a very small volume. It is certain that the city trade are dropping them very rapidly and using ribbed goods and medium weights in their place. Nevertheless the country merchant still buys his case of 50 cent fleeces regularly and states so long as such good value can be given the consumer as at present is a 50 cent garment, it will have the call.

The manufacturers of men's ribbed goods all report having recorded a large volume of business. Values have not changed any since last month in a regular way, that is, 12-pound goods are still held at $3.37 1/2, and in some instances double seated drawers are being put in at the same price. An exception to this is that A. S. Haight & Co. are showing a two-thread ribbed garment made by the Tremont Spinning Mill for $3.25. It is understood that some large orders have been placed on this line and that some of them call for delivery during the month of April at $3.10 cash.

Business on wool lines has dragged along this year more than usual and there are a few manufacturers of this class of goods who have only a small part of their production sold. This is attributed in some measure to the conservative feeling of some buyers who perhaps thought a change in the tariff might affect wool underwear, but probably a better reason for the slowness of this line can be attributed to some of the values that were shown early in the season. It is claimed by those who are qualified to judge, that some men's flat wool goods were offered as low as $7.50 per dozen, which would cost $8.50 per dozen to produce. The showing of such samples early in the season had a tendency to demoralize the buyers and cause them to put off placing their orders rather than to hurry them up any.

Ladies' 7-pound peeler and 6-pound bleached ribbed goods have sold well at $1.90 and a number of manufacturers of this class of merchandise claim to be on easy street.

The Lion Mfg. Co. of St. Johnsville, N. Y., report they have changed their system of making their bleached garments and now make them on 12, 13 and 14-inch heads, instead of 11, 12 and 13-inch as formerly. This makes a wider garment and while the fabric is not as firm as in the narrower one, it will sell better, as the trade must have size in these goods.

The La Tosca Knitting Co. report having booked a large business on ladies' and misses' combed vests, pants and suits and they are now soliciting no new customers, having about all the business they can take care of this year. In fact, all the manufacturers of ladies' ribbed goods that get to the retailer for 50 cents for vests and pants, and $1.00 for combination suits, are in good shape in regard to orders.

The proportion of bleached goods taken is increasing steadily and it is predicted that the output for the coming season will prob-

ably run about 65 per cent. bleach to 35 per cent. peeler.

Spring weights in all lines are in good demand and manufacturers are at their wit's end to deliver merchandise as fast as wanted. Buyers have been duplicating very freely since the new year began and mills are unable to turn out goods enough when the orders are booked in January and February that should have come forward during August and September.

The line on which the scarcity is felt the most is men's balbriggans to retail at 50 cents. Buyers have been scouring the market during the past week and state they can find no manufacturer in a position to deliver any of these goods under four to eight weeks. Men's 50 cent ribbed goods are also very scarce, but the call for ribbed goods for summer is very much less than that for balbriggans. Those manufacturers who are making mesh and porous knit goodc all report that they have as much business as they can take care of for the balance of the lightweight season. One maker states he has turned down orders for at least one thousand cases since February 1, being unable to get any more goods through his mill than what he had already contracted for. Nainsook underwear, both in two pieces and combination suits, are retaining their popularity and in addition to the white goods sold so plentifully last season at 50 cents and $1.00, this fabric is being shown in a wide range of fancy stripes and plain colors this season to retail at 75 cents and $1.50. The men's furnishers throughout the country have placed orders very liberally on this class of merchandise.

Ladies' low priced straight ribbed vests are being delivered promptly, but the better lines and those on which there is any fancy trimming or fancy yokes are very scarce and hard to get from the manufacturers, the claim being made that it is impossible to get these trimmings from the hands of the trimming people as fast as wanted.

Jobbers also report considerable difficulty in getting delivery on ladies' shaped goods to retail at 25 cents. J. C. Roulette & Sons of Hagerstown, Md., and Lewis Jones Knitting Co., Winchester, Va., are two of the larger factors in this class of goods, but they have been very much handicapped on account of the drought last fall, which delayed their bleaching operations, and caused them to shut down their bleaching plant for six weeks.

FANCY KNIT GOODS.

There has been a large business done in fancy knit goods by retailers during the past four weeks. The greater proportion of these orders have been for sweater coats and it is predicted by some that owing to the scarcity of these goods last season, retailers are buying rather recklessly for the coming fall and that, in consequence, there will be a number of cancellations to reckon with before the time of delivery. Many small manufacturers have started making coats this year and are producing some very sightly garments in coats to retail at $1.50 to $2.50. It is inferred by some that the sale of the better grades will be effected by these lower priced numbers, for the reason that a woman who is willing to pay $5 or $10 for a coat wants something entirely different from one that can be imitated so closely at $1.50 to $2.50.

The hunter greens and tan browns in ladies' coats are in good demand and some very handsome combinations of fancy trimmed garments are shown to retail at $4 to $5. Buyers are asking for coats four to eight inches longer this year than last, and nearly all the business is being done on the fitted lines with turndown collars and trimmed with buttons on the back of the skirt part.

Some lines of men's coats are being imported from England for the more swagger trade. They are made from very fine wool and camel hair, are very light in weight and are so sheer that they can be rolled up in a small package to be carried in a traveling bag or even put in a large overcoat pocket.

HOSIERY.

The hosiery jobber is having troubles enough this season in getting goods to fill his orders: the advance business was not large, nor is the call for immediate delivery goods of large volume, but it is almost impossible to get manufacturers to deliver goods to fill the small orders that are com-

ing in. It was an easy matter in the spring of 1908 to get deliveries on time, but such is not the case this year. The manufacturers blame the dyers for this condition and state it takes an abnormally long time to get their goods back. The dyers, naturally, with a thousand and one shades that the demand of the season calls for, have their heads and dye vate full. It is stated that there are nearly one thousand shades of blue alone and with this information the layman can see that the dyers' work in getting just the shade wanted by everyone in the different colors is no sinecure.

If the most popular color of the season is to be judged by the one most difficult to get, then it is old rose. It has been impossible to procure this color from any of the New York jobbers for some time past and the demand for it at retail stores is very strong. There is always one or more shades each season that are not anticipated and this year it is old rose in particular. Copenhagen, Holland or Russian blue, as it is variously named, is also in good demand, but this call was anticipated and provided for. Wisteria and amethyst are also good sellers.

Indications are strong for another big tan season and shoe men are freely predicting and making preparations for the same. The report of such jobbers as have been after fall business is that retailers are not ready to buy as yet, but possibly the action of the government on the hosiery tariff, as suggested by the Payne bill, may prove a stimulus. Importers have instructed their men not to accept any large orders, except subject to tariff revision.

LATEST CHEMNITZ ADVICES.

The market is very quiet and dull. Almost any price is accepted for staple goods, provided quantities are large enough to make it of interest to the manufacturer.

Thirty-nine gauge lisle hose at M4.40 can be bought again. They were offered last summer for spring delivery, but have been out of the market for the last few months. They are not made up, but will be made to order.

The dyeing of so many colors is responsible for the late delivery of staple goods, as well as of the colors. Cable orders are being received very freely from the far west of the United States, but no orders are being placed by Eastern buyers for at once delivery.

One very big buyer is placing future orders as usual, and is about the only one that the tariff rumors do not seem to affect. Most manufacturers have orders enough to keep their mills running for about another month. After that, unless more orders are received, they will have to make stock lots or close down.

Nearly all manufacturers have cut down their production as much as possible, and many machines set up last year have been idle all the season. Wages are so low that a further reduction is impossible. Wage earners are barely able to live on what they are now receiving.

Cotton and lisle yarns remain firm. Lisle yarns weakened somewhat during the last two weeks, but cotton, especially maco yarns, remained firm.

It is predicted that spinners must eventually reduce their prices if the dull business continues into the summer.

Split foot ladies' hose at M4.40 in a good weight and quality are scarce. In half hose they are plentiful. Embroidered hose are selling freely. Jacquards are not. Black, tan, white, pink, blue, lavender and purple are the colors most in demand in the last three weeks.

The textile imports into the United States for the year ending June, 1908, were as follows: Cotton manufactures, $68,379,781; fiber manufactures, $54,467,572; silk manufactures, $32,717,668; wool manufactures, $19,387,978 and adding the estimated duty, $87,476,500, makes a total of $262,429,499.

On September 29, 1908, the United States issued its patent No. 900,000. The issuance of all foreign patents up to date of last report was 1,135,000, or only 235,000 in excess of the total for the United States.

In the cotton factories of Muelhausen the spinners earn from $6.48 to $7.20 a week and the weavers, both male and female, from $3.96 to $4.80 a week, working 11 hours a day.

"RAVLWIND."

(Trade Mark.)

Copyright 1909.

ARGUTO OILLESS BEARING CO., PHILADELPHIA.

Those familiar with the knitting industry and who use loopers in finishing hosiery or other knit fabrics will appreciate the advantage to be derived from a mechanical attachment that will automatically unravel and wind the yarn of the loopers' course after the fabric has been placed upon the points of the looper at its proper course.

It seems that various attempts have been made to accomplish this result, but along radically different lines than those used by "Ravlwind."

FIG. 1. "RAVLWIND." PATENTED.

Among the more successful devices, the attention of the manufacturers was called to a mechanism which cuts the fabric down to the looping course. This is termed "Cut-

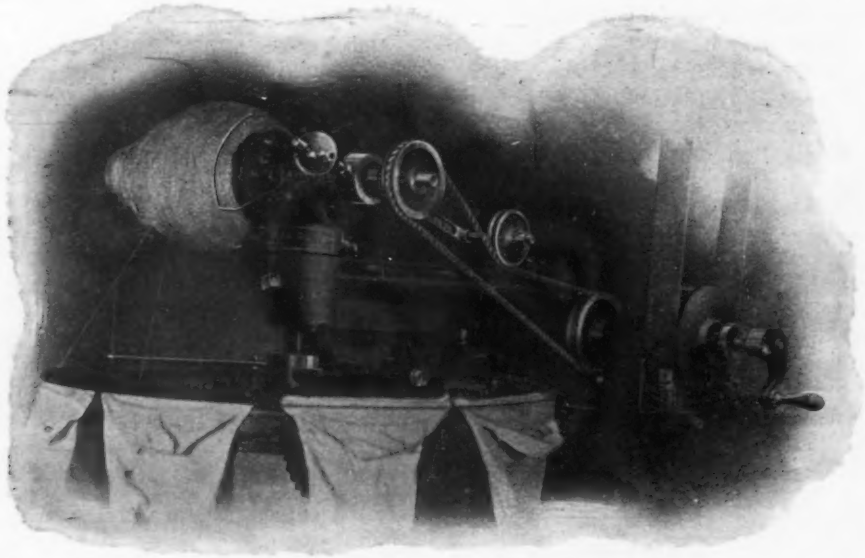


FIG 2. "RAVLWIND," AS APPLIED TO A LOOPER.

Work" and which from the operators' standpoint they found had several serious drawbacks, the most prominent being the production of rough seams and the constant attention that had to be given to the knives.

After a number of years of experimental work and series of practical tests in some of the large hosiery mills, they have perfected the "Ravlwind," a mechanical device that successfully takes the place of the old and expensive method of raveling by hand.

"Ravlwind" is very simple in its constructions, as can readily be seen from the illustrations. The head or body is so designed that it can be readily attached to the cap or head of any of the standard loopers. Care should be taken upon placing in position upon the loopers that the shaft of "Ravl-

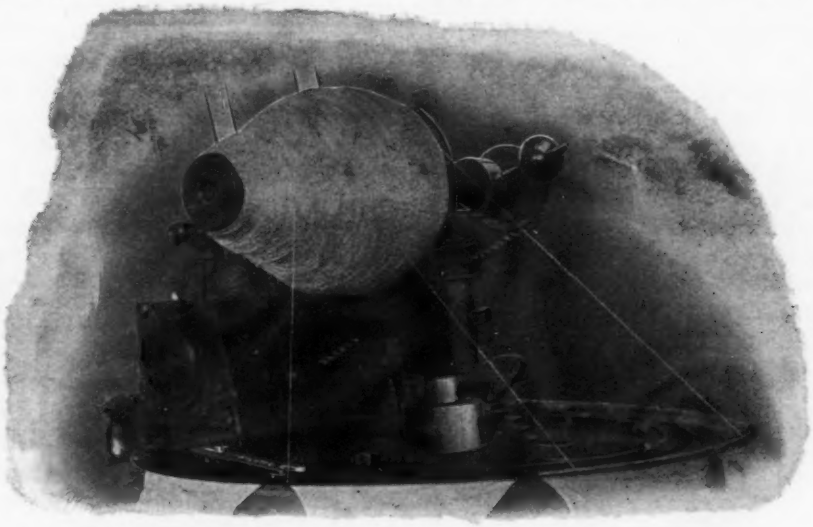


FIG. 3.

Showing the connection thread as having automatically stopped "Ravlwind" and about engaging the knife. Note the other two threads which have just started to ravel.

FIG. 4.

Showing waste as made by "Ravlwind." To produce the "Waste mat" as shown in the foreground it is only necessary to remove the cone of waste from the bobbin and cut it through from centre to outside with ordinary shears.

wind" is parallel with the driving shaft of the looping machine.

It is equipped throughout with the patented "Arguto" oilless bearings, which require no oil or other lubricant, and that permits of it being so constructed that the collection of fly, dirt, etc., is eliminated.

That "Ravlwind" may be entirely automatic, an adjustable tension lever has been devised that operates in conjunction with the belt and knife, thereby regulating the friction or tension that is required to revolve or stop the cone.

The raveling starts immediately upon placing the thread upon the cone or bobbin and continues until the loopers' course is unraveled down to the last course on the points of the machine, when the cone stops automatically. Eventually this connecting thread is engaged by the knife, which releases it and this permits "Ravlwind" to continue unraveling the next stocking or fabric.

The adjustment of the tension lever is made by moving its ball or weight along its respective rod. When raveling fine yarn it should be well out and for coarse yarn nearer the centre.

After considerable experimenting they have been able to produce a band or rope having a given elasticity and which is an important factor in the successful operation of the machine. Should the band appear too tight it is only necessary to unfasten it and untwist it the required number of turns. If too loose, a slight twist will make the required adjustment.

The knife is adjustable and should be placed in such a position that when the thread is in a vertical position at the outer end of the cone, the thread should be just entering the opening of the knife.

"Ravlwind" materially increases the production, in some instances as much as 40 per cent., as it saves the time of the operator in unraveling the waste courses and also conserves her physical strength. In mills where small girls were formerly employed as ravelers it shows a saving of from $2 to $3 per week for every looping machine, one girl raveling for two loopers. Dispensing with this help is an item worthy of consideration.

There is no waste to get into the hosiery, nor on the floors. The manufacturers state that the cones of waste as produced on "Ravlwind" are being sought for by those who have once used them, and consequently bring a better price. They state it is important when ordering to give the make of looper, model, size of driving shaft, distance between bearings and whether or not the driving shafts of the loopers are equipped with any other attachment; if so how much space is taken up. "Ravlwind" is fully protected by United States and foreign patents, applied for, allowed and issued. It is manufactured and controlled by the Arguto Oilless Bearing Co., Wayne Junction, Philadelphia.

THE NEW MODEL ACME KNITTER.

MAYO KNITTING MACHINE & NEEDLE CO., FRANKLIN, N. H.

During the fourteen years that the Acme Seamless Hosiery Knitter has been on the market, it has been improved from time to time, so that the latest model machine differs greatly from the first type.

The construction of the machine and the principles of operation are especially designed for high speed. In knitting the heel and toe the machine can be run with either of three different speeds, so that the manufacturer can have his choice as to which speed he prefers according to the conditions in his mill or the class of work he is making.

Improvements have been made so that the facility with which the style of goods, sizes and tension of stitch are changed, is unsurpassed. The cam cylinder is now made in two cylinders, enabling quick removal of the knitting cams whenever necessary.

Recent improvements have been made in the device for putting an extra thread in the heel and toe, which are spoken of in high terms by those using the latest model.

The clutch makes a positive and the quickest possible change from the circular to the reciprocating motion, or vice versa, and has been so reconstructed as to give no harmful shock to the machine or cause unnecessary noise or loss of time, or produce undue wear of gears. The pulleys have been increased in size to give greater ease of operation to the machine. The skeleton

cylinder is now made with individual bars, which makes it extremely easy to repair with little effort. The needle cylinder, wherever necessary, is made of steel, and does not have sinker rings which may clog with lint.

The transfer device is simple and rapid in use, and a recent improvement makes it impossible to drop stitches when making a transfer and materially increases the amount of perfect work.

The Acme is built in all quarter-inch sizes from 2 inches diameter to 4 1/2 inches diameter, and with any number of needles desired from 3.1 to the inch to 21.8 to the inch.

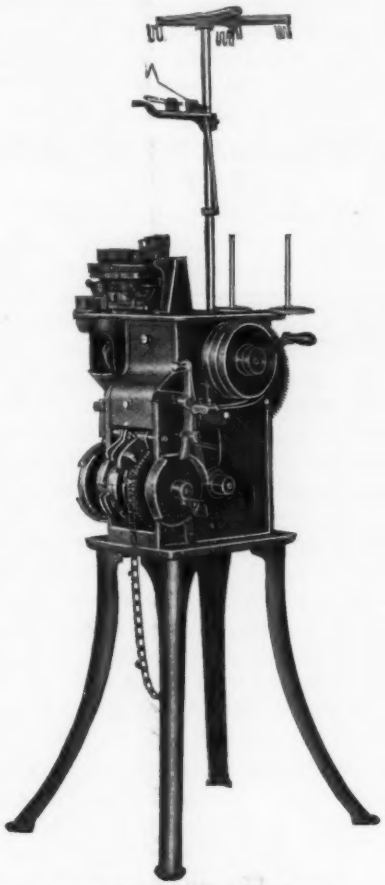
The Mayo Knitting Machine & Needle Co., Franklin, N. H., build the "Acme" as well as the "Hemphill" knitters.

THE BANNER HOSIERY MACHINE.

THE HEMPHILL MANUFACTURING COMPANY, 121 CLAY ST., PAWTUCKET, R. I.

This machine is in many ways a decided departure from other automatic hosiery knitting machines. Among the features to which the builders call special attention are the following: The cylinders revolve and being perfectly balanced there is very little friction, resulting in a very light running machine. They are guaranteed to run 300 revolutions per minute on straight work and 100 on heel and toe with any number of needles up to 240 in 3 3/4 inch cylinders.

There is an open space between the cylinder and sinker head through which the lint or waste drops, preventing any accumulation of the same. The sinkers are self-cleaning, this resulting in uniform work and a reduction in the wear on the sinker cams. The needles can be removed at any stage in the knitting without removing any part of the machine. The device for picking the needles is simple, practical and very easy on the needles. The machine has four changes of yarn, making it possible to knit a wide range of goods, and is adapted for plated work, plain work with reinforced heel and toe, high splice and double toe, black leg and white foot, all with change of yarn in heel or toe. It is also adapted for inserting linen reinforcement, as well as mercerized or lisle thread in the heel and toe. This makes the machine suitable for all classes of work and equally well adapted for ladies' hosiery or men's half hose. String work can be done and each stocking dropped when the knitting is completed, or a loose course can be knit in to be cut apart if desired by the knitter.



THE BANNER HOSIERY MACHINE.

The bobbins are stationary and this makes it possible to knit very tender yarn. The vibration of the machine is very small, even when running at full speed. The transfer is made with one revolution of the cylinder and it is not necessary to raise the needles or adjust the cams before or after the transfer. The transfer cup is strong, has removable points and is very simple in construction.

The machine has been running in the largest mills in the United States for about two years. Repairs have been so small as to be practically negligible. A large number of duplicate orders have been received, this being most conclusive evidence as to the merits of the machine.

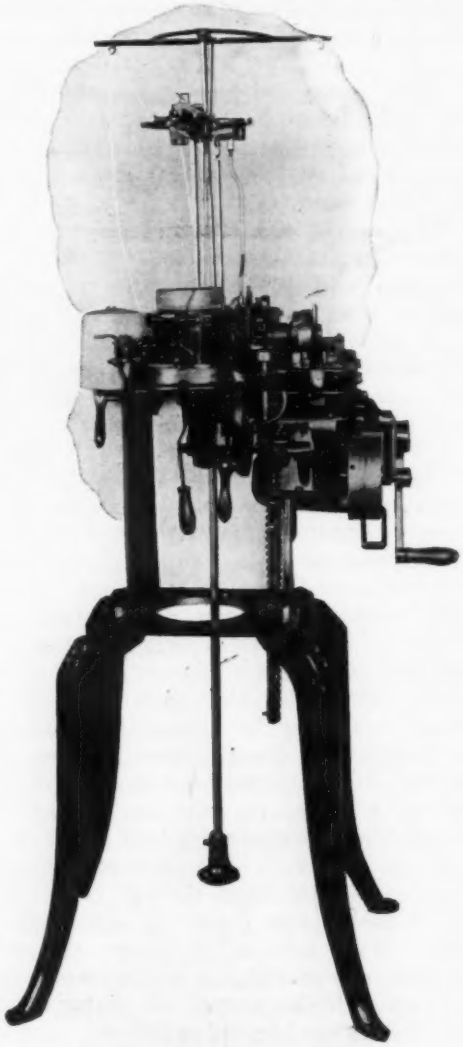
The Banner knitter can be seen in operation at the company's works at Pawtucket, R. I., knitting 200 needle work, a girl turning off from 22 to 24 dozen half hose per day and doing the transfer work besides.

THE NEW BOSS AUTOMATIC KNITTING MACHINE.

BOSS KNITTING MACHINE WORKS,
READING, PA.

The machine shown in the accompanying illustration is a new and improved automatic seamless hosiery knitter built by the Boss Knitting Machine Works, cor. Elm and Reed Sts., Reading, Pa. The Boss machine has been in extensive use in American mills for many years and the builders have developed it during that period to meet manufacturers' requirements as to production and quality of product. The new model automatic machine embodies all the improvements suggested by their experience up to date, and in offering it to the trade the builders feel confident that it is unsurpassed as an economical producer of perfect hosiery.

Among the claims advanced are the following: Simplicity of construction which reduces the breakage and cost of repairs to a minimum, while prolonging the life of the machine. A splicer which will last without repairs until the machine is worn out. The splicer on the new Boss machine deserves special attention. It is an entirely new device by which the regular knitting yarn is carried to the splicing yarn, whereas other splicers carry the splicer yarn to the principal knitting yarn. The Boss splicer is simple in construction and requires very little attention. The builders state that they are confident a thousand heels and toes can be made without missing once, unless the yarn happens to stick to the bobbin. The improved tension regulator is also an important feature. The leg is first knit loose on the top and when the calf of the leg is reached the tension is tightened at every revolution of



THE NEW BOSS AUTOMATIC KNITTING MACHINE.

the head so that it is impossible to discover where the tightening process begins and ends. The builders are confident that this tension device is unequaled for shaping ladies' hosiery. The new knitter has but one cylinder. There is also a very efficient transfer device which the builders claim is unequaled. The machine can be operated at 270 to 300 revolutions per minute,

turning out perfect work. It has been found that one fixer can easily attend 50 to 100 machines. All parts are interchangeable and any cylinder from 84 to 224 needles can be used in the same machine, it being possible to change cylinders in a very few minutes. One operator attends to 2 or 3 machines on half hose and 20 to 25 machines on ladies' hose. A production of 6 to 10 dozen is claimed for each machine.

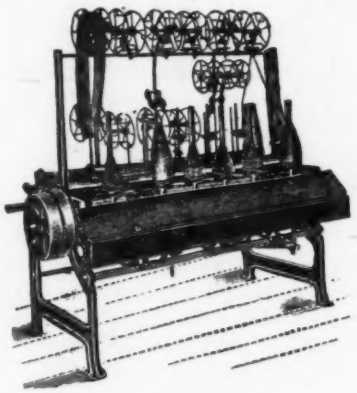
The builders state that an unskilled operator can learn to run a Boss machine in one day and that menders are reduced to a minimum. The machine runs very easily and it is also claimed that the needle breakage is greatly reduced because of the fine adjustment and simple construction of the parts. It is stated that the Boss machine will knit up all press-offs and pieces into perfect stockings.

The machine is built in sizes from 2 1/4 to 4 inches in diameter from back to back of needles. Manufacturers interested in this new machine can arrange to see it in operation by corresponding with the builders.

THE ALLEN WINDER.

A. W. ALLEN, 2421 NORTH MASCHER STREET, PHILADELPHIA, PA.

Several improvements have been recently made to the Allen winder. The machine



THE ALLEN WINDER.

will handle all kinds of yarn, laying it on the bobbins so that it will unwind without giving any trouble whatever. One of the new features is a metal cone guide which is very light, sensitive and accurate, adding materially in the construction of the bobbin. All wood is dispensed with in building the machine, which is wholly of iron and steel. The rails are planed steel with the joints milled to fit and stay in position. The gears, which are cut from solid metal, run with very little noise. The machine is adapted for all sizes of bobbins, from 8 inches for full fashioned work, to 18 inches in height for the sweater and underwear trade. The floor under the machine is left clear so it is very easy to keep clean. The machine is built with any number of spindles desired. Further information can be obtained on application to the builders.

The Tariff on Underwear.

Editor Textile World Record:

Please give me the present tariff rates on all cotton and wool underwear. Syracuse (1038).

The present tariff provides for the following rates on cotton and wool underwear:

Cloths and knit fabrics, made wholly or in part of wool: Valued at not more than 40 cents a pound, 33 cents a pound and 50 per cent. ad valorem; valued above 40 cents and not over 70 cents a pound, 44 cents a pound and 50 per cent. ad valorem; valued at over 70 cents a pound, 44 cents a pound and 55 per cent. ad valorem.

Cotton underwear: Valued at not more than $1.50 per dozen, 60 cents per dozen and 15 per cent. ad valorem; valued at more than $1.50 and not more than $3.00 per dozen, $1.10 per dozen and 15 per cent. ad valorem; valued at more than $3.00 and not more than $5.00 per dozen, $1.50 per dozen and 25 per cent. ad valorem; valued at more than $5.00 and not more than $7.00 per dozen, $1.75 per dozen and 35 per cent. ad valorem; valued at more than $7.00 and not more than $15.00 per dozen, $2.25 per dozen and 35 per cent. ad valorem; valued above $15.00 per dozen, 50 per cent. ad valorem.

Sizes of Knit Goods.

Editor Textile World Record:

Will you please state the sizes that are used for the plain 1 by 1 ribbed underwear?

Weston (1064).

The following is the scale of sizes given by the Western Dry Goods Jobbers' Association for men's plain 1x1 ribbed underwear. On this class of goods a stretch of

25 per cent. in width is allowed, which allowance may be increased up to 30 per cent. as the goods run lighter in weight, or decreased with the more rigid fabrics:

Shirts	30	32	34	36	38	40	42	44	46
Neck	16	16	17	17	18	19	20		
Chest	28	29	30	32	34	35	37		
Length	32	33	34	34	34	35	35		
Sleeve	23	23	23	23	23	23	23		
Arm holes	15	16	16	17	18	19	20		
Drawers.									
Waist	30	32	34	36	38	40	42	44	
Hip	29	30	31	32	34	35	37	38	
Thigh	16	17	18	19	19	20	21	21	
Front rise	13	13	13	14	14	14	15	15	
Back rise	17	17	18	19	19	20	20	21	
Inseam	31	31	32	32	32	32	32	32	
Suits									
Trunk	62	62	64	66	67	68	69	70	

Fillmore

LADIES' SPLIT SOLE HOSE.

Messrs. Paxton & O'Neill, Philadelphia, announce the completion of their full automatic machine for ladies' hose, samples of

SAMPLES OF HOSE PRODUCED ON THE NEW PAXTON & O'NEILL FULL AUTOMATIC MACHINE.

which in some of the different styles are shown. Various other effects can be made on it, such as narrow stripe in welt, etc.

After tests extending over more than three months the builders consider it a positively reliable machine, simple in construction and positive in its action, and making the fine quality fabric for which the Paxton & O'Neill machine is noted. It also has that desideratum of both knitters and knitting machinists, a simple, reliable yarn changer, changing easily from one yarn to another. Further particulars may be had from the manufacturers, Paxton & O'Neill, 541 N. 3d St., Philadelphia, Pa.

Marking Knit Goods.

Editor Textile World Record:

Can you give us any information in regard to marking knit goods that we have to bleach? We have never found a satisfactory method of marking the cloth before it goes into the kier.

Salem (1052).

"Salem" can overcome this difficulty by using coal tar diluted with carbolic acid to a consistency of thick cream. This will withstand the bleaching process. It is used with stamps and a pad. The pad is made in the following manner: Get a shallow box the size of the stamp required, put in a layer of thick felt at the bottom, spread over this felt

a thin layer of diluted coal tar, then cover with a piece of rag or waste knit goods. It is then ready for use. Press the stamps on the top layer of cloth until the tar comes through on the stamp, then use it on your goods. The top cloth is to prevent too much tar from getting on the stamp and blurring the marks. Care should be taken to keep the stamps clean, as the flakes from the goods stick to the stamp and thus makes the stamping thick and blurred. I have blocks made of different shapes and sizes, with oval, triangle or diamond outlines for different purposes and the letter or figures are made on little blocks of wood which are inserted in the larger block. A thumb screw on the side holds them in place. A sample of this work is shown herewith.

Dulcimer.

KNITTING MILL NEWS.

New Mills.

*California, Colton. E. B. Willit of the Willit Dry Goods Store will be president and treasurer of the California Hosiery Mills, recently incorporated with capital stock of $5,000. S. L. Adams will be vice president and secretary, and B. W. Willit a director. Construction work on the building will be started at once.

Massachusetts, Taunton. A charter has been granted the Whittenton Hosiery Co. with capital stock of $10,000. Frederick H. Gooch has been elected president; Alphonse F. Milot, treasurer; Charles F. Logan, clerk. They advise that they are not in a position to furnish detailed information of plant, but it is known that they will manufacture hosiery only. Communications should be addressed to Charles F. Logan, 66 W. Brittania St. It is understood the plant will be located on Beverly St.

*Mississippi, Meridian. A. D. McClelland of the Alden Mills, New Orleans, has arrived here to take charge of the erection of the previously noted branch plant.

New Jersey, Woodbine. A new knitting plant will be started here under the title of the Coast Knitting Co. Charter has been secured with capital stock of $25,000. Within sixty days equipment will be installed for manufacturing men's and women's sweaters, giving employment to about 75 hands. A. W. Gluck is president, M. L. Bayard is treasurer and buyer, and N. E. Kahn is superintendent. The plant will be operated by electric power.

New York, Brooklyn. The Thistle Knitting Co. has been incorporated with capital stock of $10,000 to manufacture woolen and worsted sweaters. Henry Noston, 458 Gates Ave., Brooklyn, Otto Haibler, and William Sunbrink, 564 Robbins Ave., New York, are the incorporators.

*New York, Jamestown. A building has been leased here by the Jamestown Hosiery Co. in which they will install machinery and give employment to about 30 hands. E. L. Holland of Canton, N. C., will be in charge of the plant. Previous reports of this concern have been given.

North Carolina, Chapel Hill. W. H. Ellington will establish a knitting plant under the name of the Lois Hosiery Mill. He will install a 10 h. p gasoline engine and 27 knitting machines. This equipment has been purchased, but he expects to increase it within a few months.

*North Carolina, Creedmoor. The Standard Hosiery Mills Co. has been organized with $3,000 capital paid in. W. B. Lasley will be treasurer and buyer. A few George D. Mayo knitting machines have been installed, and they plan to shortly increase to 20 knitting machines. Half hose will be manufactured. They will begin the production of goods about April 1.

North Carolina, Marion. The Marion Knitting Mills have completed the installation of equipment and have started manufacturing.

North Carolina, Marion. The Mount Ida Hosiery Mills have started manufacturing.

North Carolina, Raleigh. Messrs. Ratcliffe & Fowler have recently started the Glenwood Hosiery Mill in a new frame building. C. H. Smyth is president. They intend to add machinery and the enlarged plant will consist of 20 knitting machines, 2 loopers, and 4 ribbers.

North Carolina Wilson. The project headed by W. S. Cantwell is for a cotton knit underwear plant. As reported previously a $30,000 company will probably be organized. Mr. Cantwell would like information on necessary equipment.

Pennsylvania, Mill Creek. Messrs. Mickel & Speck have recently equipped a small plant here for the manufacture of hosiery.

Pennsylvania, Philadelphia. The Cambria Silk Hosiery Co., Inc., is the title of the new corporation to be started in the Ontario Mills, Second St., above Columbia Ave. They will manufacture ladies' fine gauge silk hosiery and will start with three fullfashioned hosiery machines. Louis Weber is president, Herman Voss is secretary and treasurer, and Richard Reinhold is superintendent.

Rhode Island, Providence. There will be incorporated under Rhode Island laws within a short time The Rhode Island Silk Hosiery Co. with capital stock of $100,000. John Staton, William Staton and Arthur Weightman, all of Northampton, Mass., are the interested parties. According to the present plans they will locate a factory in the building of the Providence Belting Co., and give employment to 20 hands at the start. Four machines have been ordered. It is understood that a product similar to that of the McCallum Hosiery Co., of Northampton, Mass., will be made.

*Wisconsin, Milwaukee. The knitting plant of W. F. Hummel will be located at 936 Third St. He will make sweater coats, cardigan jackets, and similar goods, both machine and hand made.

Enlargements and Improvements.

*Connecticut, Addison. A brick addition, 4 stories high, 60 by 60 feet, will be built to No. 1 Mill of the Glastonbury Knitting Co. The equipment will be increased.

Indiana, Garrett. It is reported that the branch of the Wayne Knitting Mills of Fort Wayne which is located at this place will be removed to Roanoke, Ind., where another branch plant is located. The plant at Roanoke will be doubled.

Illinois, Kankakee. A large addition of cement construction will be built for the Paramount Knitting Co. The proposed addition will be 138 feet long.

*Iowa, Atlantic. Manufacturing has been resumed in their new quarters by the Olsen Knitting Co., who recently moved here from Elkhorn. Considerable new machinery has been added in the new plant.

Iowa, Des Moines. Since starting last fall the Guarantee Hosiery Mill has enlarged its plant, and it is reported they contemplate further enlargement. R. B. Dennis is treasurer and manager. Mr. Dennis was formerly superintendent of the Des Moines Hosiery Mill.

Maryland, Hagerstown. J. C. Roulette & Sons, manufacturers of ladies' jersey ribbed underwear, will enlarge their output by equipping a branch factory. Plans will be completed about April 1.

Massachusetts, Adams. It is stated probable that J. O. and O. J. Purnell will soon lease additional space and increase the machinery equipment.

*Massachusetts, Northampton. Construction work has been started on the extension to the McCallum Hosiery Co.'s plant. This enlargement is the same as the one reported as contemplated in the fall of 1908.

Massachusetts, Stoughton. About April 15 the new plant for Charles Stretton & Sons will be completed, replacing the plant recently destroyed by fire. Contract for the construction of buildings has been awarded to George W. Eldridge of Brockton. The new plant will be larger than the old one.

Michigan, Clare. Five new knitting machines have been installed in the Clare Knitting Mills, and the company is adding a line of men's fine cashmere hose.

Michigan, Grand Rapids. Several new knitting machines are being installed by the Star Knitting Co., and the finishing department is being enlarged. They operate 75 knitting machines and 65 sewing machines on knit underwear.

*Michigan, Grand Rapids. Changes being made by the Globe Knitting Works are in pursuance of a plan to do all knitting and dyeing in the Middleville plant and all finishing and shipping from the Grand Rapids plant.

New York, Brooklyn. Recently the New York Eagle Knitting Mills increased their capital stock to $30,000. They are now operating 58 knitting machines and 32 sewing machines on sweater coats and other knit goods, using 2/20s to 2/26s worsted yarns. Theo. Stassner is treasurer and Alfred Ryder is superintendent. The plant is operated by electric power.

*New York, Clinton. The Clinton Knitting Co. has nearly completed enlargements and improvements begun last December and will resume manufacturing about April 1. The capacity will be nearly doubled.

New York, Mohawk. The Augusta Knitting Mills Co. of Utica has bought the 3-story brick mill of the Paragon Knitting Co. Robischon & Peckam Co., knit goods selling agents, New York, control the Augusta Knitting Co.

*New York, Mohawk. The Duofold Health Underwear Co. has completed the removal of its plant to this place. The plant at Frankfort has been shut down. They did not own the Frankfort property, simply leased it, and now have turned it over to its owners.

New York, New York City. Increased demand for their goods has forced the Atlantic Knitting Mills to add a loft at 30-32 Sullivan St. to the two lofts at 26-28 Sullivan St. heretofore occupied by them. This concern is enlarging its plant to double the original capacity. They manufacture ladies' sweater coats and golf vests.

North Carolina, Burlington. The Daisy Hosiery Mills have increased their equipment to 53 knitting machines, 14 ribbers and 14 loopers, and have discontinued the dyeing department, selling their goods to converters in the grey.

North Carolina, Burlington. Recently the capital stock of the Whitehead Hosiery Mills was increased to $16,000, and the equipment increased to 18 knitting machines, 14 ribbers, and 14 loopers.

North Carolina, High Point. The proposed addition to the High Point Hosiery Mill reported last November, will be a dye house. The structure will be one story high, 50 by 100 feet, of brick construction. Work will be started at an early date.

North Carolina, Raleigh. A large increase will be made in the capacity of the Martin Hosiery Mills. It is stated that the present equipment will be tripled.

North Carolina, Tarboro. The Wilson & Dawson Hosiery Co. have taken over the building formerly occupied by the Wah-Ree Hosiery Co. and equipped it with 77 knitters, 4 ribbers, 10 loopers, and 10 sewing machines. They manufacture 176-needle ladies' hemmed-top hosiery. They report business excellent and contemplate the installation of 25 new knitting machines and erection and equipment of a dye house.

*Ohio, Cincinnati. Construction work will be started within a short time on the proposed new three-story addition, 40 by 50 feet, for the Adler Underwear & Hosiery Mfg. Co. The new space will be used for carbonizing.

*Ohio, Piqua. Work will begin immediately on the 65 by 300-foot mill for the Atlas Underwear Co. and the contract calls for completion early in the summer. At present this company employs 350 hands and expects to increase this number to 600 when the addition is finished. L. M. Flesh is president and buyer, E. A. Todd is treasurer, and H. E. Sims is superintendent.

Ohio, Piqua. Plans have been completed for a new building for the Superior Underwear Co.

Pennsylvania, Boyertown. A new building will be built for George W. Unger, proprietor of the Crescent Knitting Mills, to be equipped as a dyeing department.

*Pennsylvania, Hamburg. Within two weeks machinery will be installed and running in the addition under construction for the Hamburg Knitting Mills. Details of this enlargement were given in January. The capacity of the plant is being practically doubled.

*Pennsylvania, Harrisburg. New machinery for the addition recently completed for the Wellknit Hosiery Co. consists of 3 Wildman ribbers and 10 George D. Mayo Machine Co.'s full automatic knitters.

Pennsylvania, Harrisburg. New machinery is being installed in the Auto Knitting Mills, Inc.,

1451 Zarkar St., and they have recently placed an order for ten George D. Mayo Machine Co.'s full superintendent of this plant.
automatic knitting machines. J. L. Artz is now

Pennsylvania, Philadelphia. A charter has been granted the Logan Hosiery Mills Co., to continue the business of the Logan Hosiery Mills, with capital stock of $10,000. This company equipped a plant several months ago and in December removed from the original quarters to the Bromley Mills at the corner of Jasper and York Sts. They expect to add machinery shortly for a line of men's and misses' hose.

Pennsylvania, Philadelphia. The United Knitting Co., manufacturers of sweater coats on 8 knitters and 8 sewing machines at 441 North 2d St., have removed their plant to 332 Market St., and at which address they are adding more machines with a view of doubling their capacity. J. & L. Rubin are the proprietors.

Pennsylvania, Philadelphia. The Oneida Hosiery Company are removing their plant to the building formerly occupied by the Brown Knitting Co. at Second and Allegheny Ave., where they will have much larger quarters.

Pennsylvania, Philadelphia. Rosenau & Loeb, proprietors of the Liberty Hosiery Mills, now at Mascher and Turner Sts., report that they have leased larger quarters at 1822 North Cadwalader St., into which they expect to remove at once.

Pennsylvania, Reading. A new three-story mill, 80 by 130 feet, will be built as an addition to the Mount Penn Underwear Mill, Miller & Stondt, proprietors.

Pennsylvania, South Bethlehem. The Austin Knitting Co. have purchased property adjoining the plant on which they will build an additional building.

*Pennsylvania, Spring City. Dimensions of the addition to the Century Knitting Co.'s plant are 180 by 50 feet, 4 stories high. Ladies' ribbed underwear is the sole product.

*Virginia. Portsmouth. The Parker Hosiery Mills & Dye Works have removed their plant to the new building at High and Belt Line R. R. Two new 2-story buildings have been erected, one of which they are using for dyeing and finishing purposes, and the other has been equipped with 150 knitters, 28 loopers, and 28 ribbers. This machinery is being operated on misses' and children's cotton ribbed hosiery. Joseph A. Parker is proprietor, and H. V. Parker is general manager. The Bethel Hosiery Mill, formerly operated by Joseph Parker, has been consolidated with the Parker Hosiery Mills & Dye Works.

Washington, Seattle. The Washington Knitting Mills, Inc., are now moving into their new factory building on 1007 Western Ave. They manufacture a new muffler for which large orders have been received. H. W. Sewall is president, I Fleissig is vice president, and Sol Meyers is secretary.

Wisconsin, Appleton. The Saxony Knitting Works, who were reported to be looking for a new location, have decided to remain here. The Shannon Building will be purchased as a new location, and an addition 80 by 30 feet will be erected.

Mills Starting Up.

New Jersey, Salem. The Salem Knitting Mills are being put in running order, and it is reported will shortly resume manufacturing. Buildings and equipment were recently purchased by James Taylor, second hand machinery dealer of Philadelphia.

Pennsylvania, Philadelphia. The Kent Knitting Mills, 2726 Mutter St., recently reported as going out of business and then starting up again, has been closed down finally and the machinery has been purchased by Barger, Bains & Munn, located at Mascher and Turner Sts., to whose plant it is now being delivered.

*Tennessee, Johnson City. The Unaka Knitting Mills will be started up at once by L. A. Bassett, who has leased and is now operating the Watauga Hosiery Mills.

*Texas, Austin. Z. T. Fulmore, previously reported interested in the organization of a hosiery mill, is reported to have machinery equipment and is trying to organize a company.

*Utah, Ephraim. Rumors that a new knitting mill is to be located here refer to the possibility of the proprietors of the Sanpete Knitting Works of Spring City, Utah, removing their plant to this place. The Commercial Club promises to interest local capital in the enterprise.

*Virginia. Berkley. The Berkley Knitting Mills, which have been operated by the receiver for some time, have been shut down. It is reported that the plant is for sale or lease.

*Virginia, Norfolk. The Berkley Knitting Mills have been purchased by George W. Simpson who offers the plant for lease. The machinery is in good condition and ready for operation.

Wisconsin, Appleton. David Nottage, treasurer and buyer of the Fox River Valley Knitting Co. has secured the interests of the other stockholders, and is now sole proprietor of the business.

Wisconsin, Ashland. The entire assets and equipment of the Ashland Knitting Mills has been purchased by a new company known as the Banker Knitting Mills (not incorporated), who will continue the business. The officers are J. M. Banker, secretary of the Ashland Knitting Mills, and G. N. Banker.

Personals.

Wm. McMath has accepted the position as overseer of knitting at the Arna Mills, Dearborn, Mich.

Geo. E. Luce, until recently overseer of the Boott Mills, Lowell, Mass., has accepted a position as superintendent of a large knitting plant at Waterford, N. Y.

Wm. T. Burris has accepted the position as overseer of knitting at the Union Knitting Mills, Logan, Utah. He was formerly employed at the Logan Glove & Tanning Company, Logan, and succeeds Elias Nelson.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Bobbin and End Holder. The Eclipse Holding Co. is putting on the market a combination bobbin and end holder which prevents waste yarn when doffing. It is adapted for mules and winders. It is claimed to save spindle packing, splitting of bobbins, winding underneath when doffing. The act of doffing the bobbin clutches the end of the yarn. This end is released when the empty bobbin is put on and the end is picked up without looking for it. They also make bobbin holders for twisters and spools.

Burling Comb. Charles Maryns, 4236 Frankford Ave., Philadelphia, is putting on the market an improved comb which is claimed to remove all the noils, nobs and loops in mixed worsted and woolen goods, saving 50 per cent. of the burling expense and producing better work.

Whaleback Sewing Machine. Thomas Leyland Co., 60 India St., Boston, Mass., are introducing a piece end sewing machine of the whaleback pattern which embodies an important improvement in the setting of the guide pins, which are in a link chain rather than in a solid ring. The pin chain is long enough to allow fastening the full width of the cloth at once, saves handling and gives greater convenience in operation.

Augusta Starch. The New Brunswick Chemical Co., New Brunswick, N. J., are putting on the market a special starch for sizing both cotton, woolen and worsted warps. It is low priced and is claimed to be absolutely harmless and to prevent linting when weaving at any temperature.

Revolving Mercerizing Machine. Joh. Kleinewefers' Sons, Krefeld, Germany. An automatic machine for mercerizing yarn in the skein by the revolving system. Among the claims are economy of labor and liquor, a large production and low cost.

Dyeing Machine. Frederick Gebauer, Berlin, Germany. A dyeing machine in which the liquor is automatically forced through the material to be dyed, first in one direction and then in the other. The claims made include uniformity of color and economy of labor in operating the machine.

Machine for Cutting Towels, Etc. H. L. Ransom, Lockport, N. Y., has originated and is putting on the market a machine for cutting towels, napkins, or other goods woven in the web or piece, that are required to be cut across the warp. The machine is arranged so that while cutting the cloth it is possible to follow a line midway between the borders; if the borders are slightly bowed the border line may be followed, as with hand cutting, and the towel itself will not be cut out of line. As the towels are cut, they are automatically piled one above the other and are counted by a register attached. The machine is claimed to do the work of from six to eight operators with hand shears.

Head Motion for Looms. Schelling & Staeubli, Horgen, Switzerland. An improved head motion for dobby looms, it being especially adapted for long patterns covering a large number of picks.

Two Speed Attachment. T. Coulthard & Co., Preston, England. An attachment for ring frames by which the speed is increased when the yarn is being wound on the large part of the bobbin.

Stop Motion for Ring Frames. Schoemaker & Co., Enschede, Holland. A stop motion for ring frames by which the supply of roving is automatically stopped when the thread is broken in front of the rollers.

Horse Hair Shuttle. Bruno Knittel, Dresden, Germany. An improved nipper for drawing the filling in weaving horse hair.

NEW PORTABLE ELEVATOR.

The elevator shown in the accompanying illustration is designed to fill the need for a simple, strong, easily handled, portable elevator. With little labor, no loss of time and no danger of breakage this elevator lifts merchandise weighing up to 1,200 pounds and raises them to any required height up to ten feet. Every bit of space may be used from floor to ceiling and this without the costly, laborious, time wasting, old fashioned way of using step-ladders, planks and a big force of men.

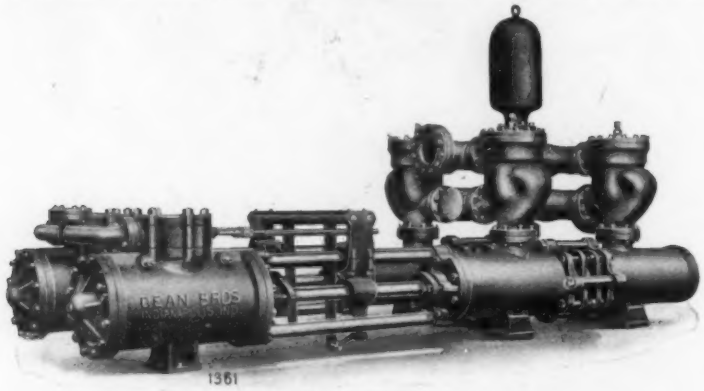
This elevator is convenient to use as it may be easily wheeled about, going through narrow aisles in which it can be turned like a truck. It can be operated in a four-foot aisle and loaded and unloaded from front, back or either side. It required but one man to raise a package 1,200 pounds in weight, ten feet up, showing a great saving in labor. The illustration shows the machine being used to tier 700 pound bales in the warehouse of Frederick Vietor & Achelis Co., 66 Leonard St., New York City. One man easily raises the bale, another piles it. It can be seen how easy and simple it makes the work. The New York

A REVOLVING PORTABLE ELEVATOR IN A TEXTILE WAREHOUSE.

Revolving Portable Elevator Co., of 450-454 Princeton Ave., Jersey City, N. J., are the makers of this elevator, and upon information as to requirements and circumstances will be pleased to submit estimates.

DUPLEX PLUNGER PUMP.

This duplex plunger pump is made for heavy duty by Dean Bros. Steam Pump Works, Indianapolis, Ind. There are two cylinders on each pump, making four in all. They are of steel and designed for a working pressure of 250 lbs. to the square inch.



A DUPLEX PLUNGER PUMP.

The plungers are of bronze and are outside packed. The valve pots containing valves and seats are mounted on the pump cylinders. The valve seats screw into valve pots and are, therefore, removable. The plungers are hard composition, working through deep stuffing boxes. The plungers are self-draining. The valve seats, stems and springs are bronze. The steam valve gear is Dean Bros.' patent durable design, without rock shafts and has the following novel features:

The levers turn on studs.

The frames are made with polished steel rods.

The valve levers are alike and interchangeable.

The whole valve gear can be removed and reassembled in a few minutes.

The steam cylinders have extra heavy steam chest cover.

The water cylinders tested to 500 pounds to the square inch.

The steam cylinders tested to 400 pounds to the square inch.

AN INGENIOUS "TIE".

One of the most ingenious devices that has come to our notice recently is a fastener or tie to be attached to a cord for securing bundles.

This "Tie" is of metal, very simple in construction, and merely hooking the cord into the device insures a securely tied bundle no matter how roughly handled. The tighter the cord is drawn the more securely is the bundle fastened. The bundle can be handled by the loose end of the cord without in any way endangering the security of the fastening.

The untying is as simple as the tying as it is only necessary to grasp the "Tie" by the back and it instantly loosens itself.

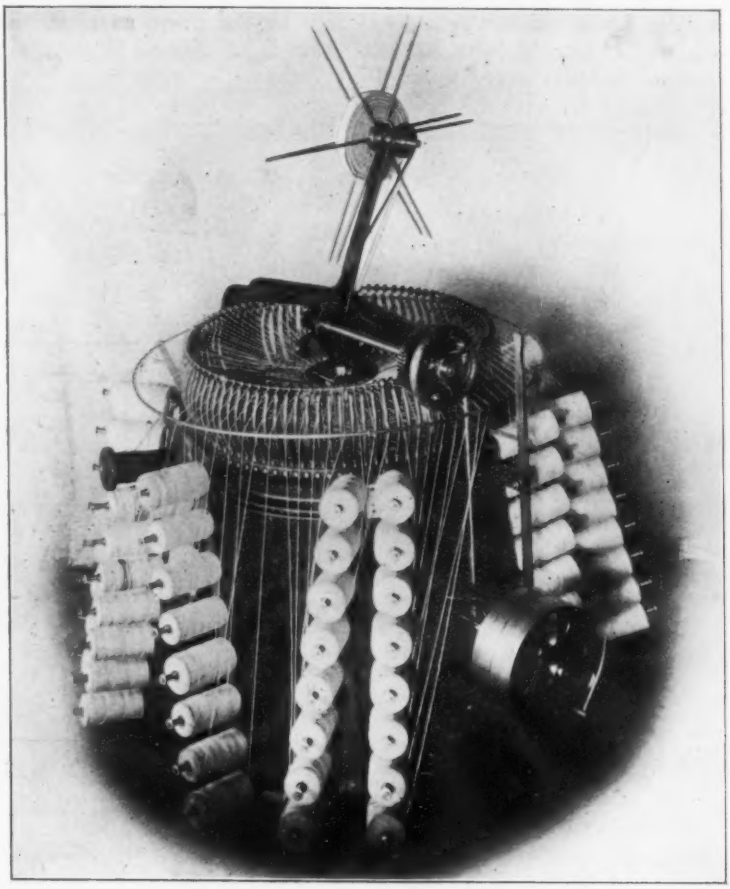
Owing to its simplicity of operation and its tenacity of hold it is exceptionally adapted to factories and mills where bundles of goods or raw materials are sent from one department to another.

One great advantage of this "Tie" is the saving in cord, as with this device the same cord can be used many times and yarn, underwear, cloth, gloves, brooms, clothing, etc., can all be securely fastened with it. The "Tie" can be made very cheaply in almost any desired size and will save any firm time and money. The Reliable Tie Company of Chadwicks, New York, are the makers of this "Tie."

THE CHERNACK CIRCULAR LOOM.

THE CHERNACK CIRCULAR LOOM CO., 262 DOVER ST., BOSTON.

This is a new machine recently perfected and placed on the market for the weaving of circular fabrics such as fire hose, garden hose, cable covering, flexible conduits and many other purposes including woven belting. The loom is operated on a new principle which makes it possible to obtain a high speed and a uniform tension of the warp threads, resulting in an increased production of perfect goods. We have recently inspected this machine in operation and were much impressed with the simplicity of the construction and the small amount of attention required for its operation. It is stated that one attendant can operate at least six of these looms. We saw it running for a considerable time during which it required no attention from the operator. As is seen by the illustration, the warp is supplied from spools holding a large amount of yarn, but occupying a very small space, one machine occupying only about 35 square feet, which is a great reduction on what has heretofore been possible.



THE CHERNACK CIRCULAR LOOM.

The warp threads are carried into the machine and collected at the center where the fabric is woven. The shed is formed in the warp and the shuttle is passed through it by one simple mechanism, which consists of a revolving double cam. This cam moves slides carrying the warp threads and these slides in turn propel the shuttles. The cam and slides constitute the principal working

parts of the machine, which is, consequently, very simple, it being one of those mechanisms which suggests the question, Why was it not thought of before?

A uniform tension is maintained by a device equally simple and effective. The loom has four shuttles so that at every revolution four picks are placed in the fabric. When we saw it in operation it was weaving garden hose at the rate of three feet a minute. The filling bobbins carry a large amount of yarn, being 7 1/2 inches long and 4 1/2 inches in diameter when full. Larger bobbins are used for weaving fire hose and other larger tubing.

The machine is well adapted for cable covering and the builders are confident that it will equal a three-deck braider, giving a more solid covering and turning it out much faster. At the time we inspected this loom we had an opportunity of seeing a new braider which Mr. Chernack is developing and to which we will call the attention of our readers in a later issue. One of the circular looms will be in operation at the coming Textile Machinery Exhibition at the Mechanics Building, where those interested will have an opportunity of inspecting the machine and get full information regarding it.

THE HYGROSSO.

IMPROVED HUMIDIFIER OF THE SPRAY TYPE.

The Hygrosso illustrated in these pages is the latest type of spray humidifiers to be placed on the market. The special advantages pointed out by the makers are as follows: The spray is obtained by centrifugal force instead of pressure pumps, which eliminates the necessity of special pumping systems under heavy pressure. A fan circulates the air so as to mix with the spray and greatly increase the evaporation. The fan also has the advantage of distributing the moisture thoroughly and secures more uniform results throughout the room and produces the greatest possible cooling effect. The Hygrosso is driven by a one-inch belt from the shafting and requires one-eighth horse power. Power taken from line shaft is of course the cheapest obtainable and makes the cost of operation trivial. One-fourth (25 per cent.) of the water used is claimed to be evaporated and the average amount supplied to each head is about twelve gallons per hour. The water may be taken from any convenient line in the mill, since it requires no pressure.

The water is fed into the hollow of the disc, which operates inside the cast iron case, and is thrown with such centrifugal force against a copper grid that it is pulverized to the finest possible mist. This mist is readily absorbed by the air which is being constantly brought in contact with it by the fan.

The machines are designed to be of the most durable construction possible. All parts are exposed to the open, nothing is enclosed, and are easily accessible. It is claimed there is no chance whatever for the accumulation of foreign matter to produce unsanitary conditions, that it is practically impossible for the drain to clog since the fan discharges directly over drip pan, keeping the opening free from the accumulation of "fly." There are not wet cloths, spray nozzles, pressure blowers, etc. It is a simple piece of mill machinery requiring the attention necessary to any piece of running machinery. The revolving disc is made of heavy spun copper, drip pan of spun copper,

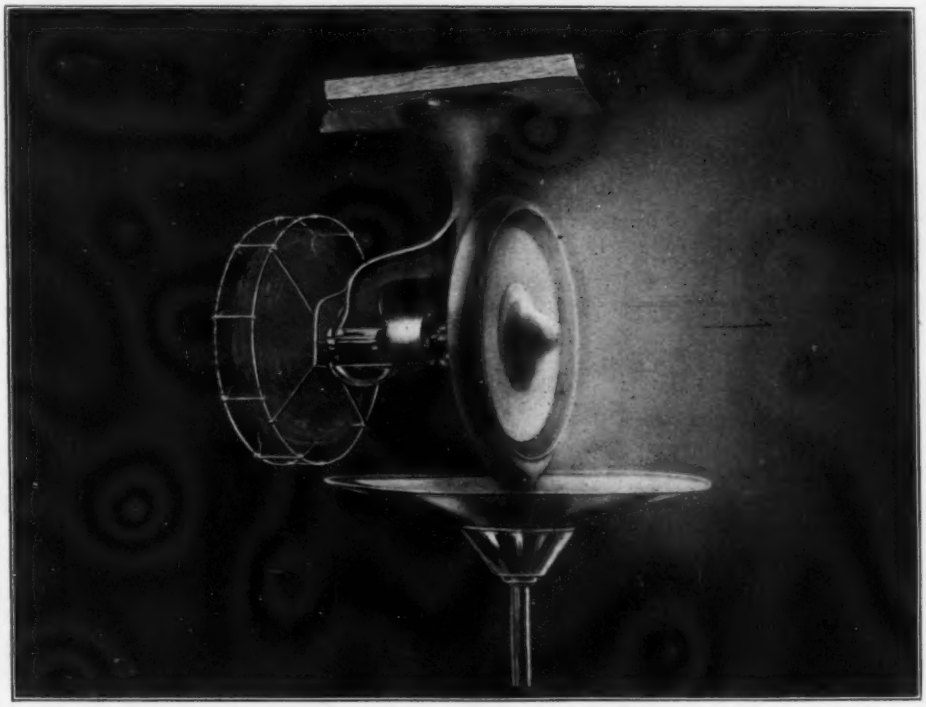
THE BELT DRIVEN "HYGROSSO."

fan of nickeled steel, guards of heavy enameled brass, case and hanger of cast iron. It is claimed that with ordinary attention the Hygrosso should last indefinitely.

Each humidifier works independent of the others and should any trouble be experienced with one machine, it would not be necessary to stop the entire system and lose the results of the same until necessary repairs are made.

The Hygrosso can be installed easily in connection with or to supplement other systems. It also fits in nicely for some departments of mills which have been neglected in the past on account of the necessity of special forms of power required for operation.

We are informed that installations of the Hygrossos have been made in some of the largest and most up-to-date mills in the country and have won favor on account of their extrame simplicity. The manufacturers have quite a lot of work on hand at the present time and will be glad to furnish mills interested with detailed information and list of users of their humidifiers. The Hygrosso is manufactured by John W. Fries, 45 Lafayette St., New York.



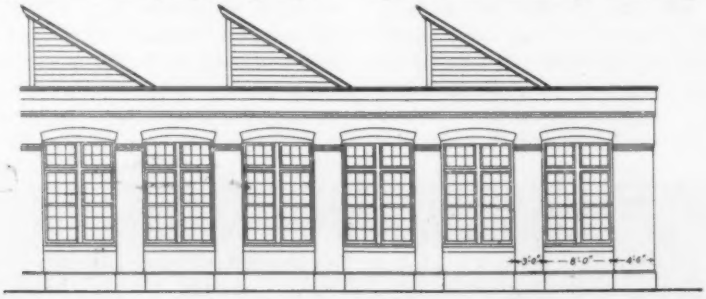
THE "HYGROSSO" IN OPERATION.

A MODERN ONE-STORY MILL.

In the accompanying drawings are shown the essential features of a modern one-story mill designed by F. W. Dean, mill engineer and architect, of Boston. As the most important features there were demanded an abundance of uniformly distributed light without glare of the sun and a rigid floor capable of receiving looms to be bolted down anywhere.

A generous supply of light over the entire area is secured by the use of saw tooth skylights facing almost due north. For several reasons vertical faces were selected for the saw teeth. Regular window sash were used in place of the metallic sash required when the face is inclined. The saving thus effected was practically balanced by the increased expense due to the longer rafters which were required. But it was not necessary to provide independent ventilators for

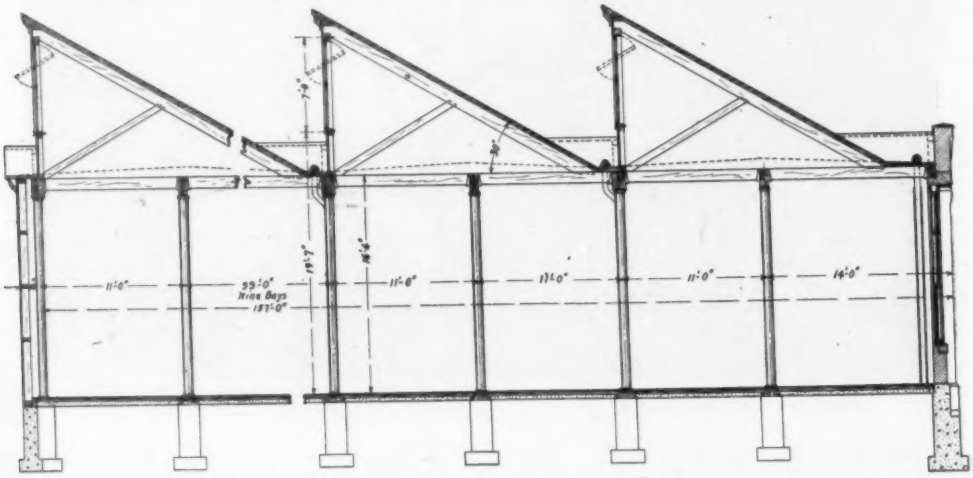
the upper sash were hung on a horizontal central axis and arranged to be operated by cord from below. By this arrangement the ventilation can be graduated to suit the exact requirements either by opening a portion of the windows or opening all a portion of the way. Condensation on the glass is positively caught by the zinc trays at the stools. In the general skylight design Mr. Dean has departed to some extent from the common practice of setting the face at an angle of 60° to 80° with the horizontal, but with manifest advantage on the whole.



The floor combines both rigidity and elasticity. It is made of, first, four inches of coarse tar concrete; second, one-half inch of fine concrete well rolled; third, two inch plank seven inches wide placed with alternate spaces of seven inches; fourth, a solid floor of two inch plank well spiked to the third layer,—this plank is all treated with carbolineum; fifth, seven-eighth inch maple top flooring.

Being laid directly upon the ground this construction prevents driving the machinery from beneath the floor. But the overhead arrangement of girders furnishes convenient spaces for shafting reaching the length of the building. There are also iron sticks every eight feet to carry longitudinal shafting.

In general dimensions the building measures outside 107 ft., 8 in., by 158 ft., 6 in., by about 15 ft. in clear height. It is designed for future extension, one end being at present closed by temporary wooden construction. The columns of 9 in. diameter Southern pine are spaced 11 ft. longitudinally and 25 ft., 4 in., transversely. They support alternate 8 by 16 and 12 by 16 beams, which carry the roof in connection with the 8 by 10 purlins spaced 8 ft. on centres. All roofing is of 2 1/2 plank covered with plastic slate. This is carried up the vertical faces of the saw teeth to the level of the window sills so as to act as a flashing. The inside



of the battlement wall is similarly treated. The saw tooth roofs which are inclined at an angle of 30° to the horizontal are carried on 8 by 10 rafters 8 ft. on centers braced by 6 by 6 struts. The heating is accomplished by means of overhead circulation. Mills in accordance with these plans have been built in Passaic and Paterson, N. J.

A LOOM PICKER CHECK.

A picker check, invented in Lancashire and patented in this country, is described by the inventor as follows: It is usual to employ, at the present time, for the purpose of arresting the movement of a picker, a number of strips of leather, or a block of leather, disposed upon the picker spindle, and having attached one end of a check strap of which the opposite end is secured to a stud fixed in the front of the shuttle-box or to any other convenient part of the loom. The length of this check strap is such, or can be so adjusted, that the buffer, although normally occupying a position upon the picker spindle close to the stud on the end thereof, is not actually in contact with such stud. On the picker striking the buffer the strap is placed in tension and absorbs the shock caused by the impact of the picker against the buffer. This buffer and the check strap for arresting the movement of the picker, are not only expensive but require frequent renewal. Moreover it is found that the continual strain to which the check strap is subjected causes it to become permanently stretched or extended, and unless this is remedied in due time the strap fails to perform its function, as the buffer takes up a position against the stud on the end of the picker spindle and receives the whole force of the blow of the picker. As a result of this the stud is driven off the end of the picker spindle and damage done to the piece.

The object of this invention is to overcome the disadvantages of the ordinary buffer and check strap by providing a buffer which shall be sufficiently elastic to absorb the shock caused by the blow of the picker, and at the same time sufficiently durable to withstand the repeated blows of the picker. This is accomplished by using for the buffer a fibrous material combined with india rubber, used in the form of a fabric.

Fig. 1 is an end view of the buffer; Fig. 2, a side view; Fig. 3, the buffer in position upon a picker spindle; Figs. 4 and 5 are views, corresponding to Figs. 1 and 2, of a cap which is used with the buffer

A cotton sheeting of suitable length and width is coated with a thin layer of india rubber in a liquid or semi-liquid condition.

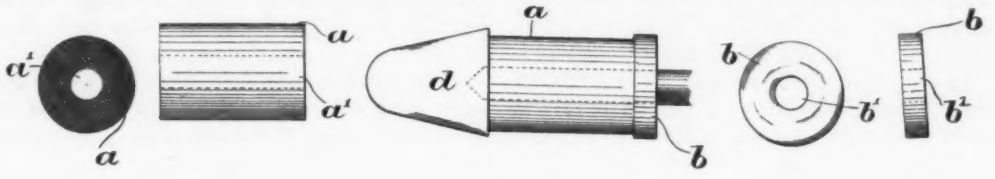


FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5.

The sheeting is then passed through heavy rollers after which another layer or coating of india rubber may be applied and the cloth again squeezed between heavy rollers and so on as often as may be required, the squeezing having the effect of forcing the india rubber into, but not through, the cloth. The opposite side of the cloth is then treated in the same way. The cloth is then wrapped around a mandrel into the form of a tube, as shown in Fig. 1, this tube being composed of alternate layers of india rubber and cloth. The tube is then vulcanized and cut into short lengths to form the buffers, a, as shown in Figs. 2 and 3. To prevent the buffers being impaired or destroyed by the oil in which the pickers are steeped, or by the acids in the oil, they are coated at the ends and otherwise externally with celluloid or similar material.

The buffer, a, is placed upon the picker spindle, c, so that it is in contact with the stud, d, as shown in Fig. 3, and the bore or internal diameter, a^1, of the buffer, a, is made slightly less than the diameter of the spindle on which it fits so that the buffer firmly grips the spindle and is held securely in its place.

Dyeing, Bleaching, Printing, Etc.

BLEACHING UNDERWEAR.

BY MILTON.

The bleacher should insist on having a good oil soap as it is the cheapest in the end. Cheap soaps are detrimental to the goods as they are made of cheap fats and filled up with salt to give them body. They often leave the goods harsh with a rancid smell and cannot be washed out. Good oil soap used with ammoniated or refined alkali will leave the goods cleaner and softer than either sal soda or soda-ash. A good machine for this class of goods is a washing machine with a revolving cylinder and a reverse motion which keeps the goods open while they are scouring and does uniform work. There should be a good supply of warm water with steam and water so that the temperature can be controlled. The temperature for this class of goods should not be over 105° F. Cold water should never be run on to the goods until the soap is thoroughly washed out, as it sets the soap in the goods and leaves them sticky and gummy. The galvanized iron water pipe should be at one end of the machine, and the outlet at the other. The feed pipe should be one and one-half inches and the outlet one and one-quarter inches so as to insure a good circulation of water through the body of the goods. The quicker this class of goods is washed out the better as they will not stand much handling. When the goods are extracted the water that comes from the goods should be clear. The bleacher will find seven times out of ten that the water generally shows up soapy. The goods in this condition will not bleach out a good clear white.

Cotton and wool mixed goods cannot be bleached to a uniform shade with sulphur. The sulphur house should be air tight so that the sulphur fumes will not escape. After the goods are bleached the sulphur should be thoroughly washed out or there will be trouble after the goods have laid in stock for any length of time. It will be found that the sulphur has left the cotton mixed goods tender. There is, moreover, more or less trouble with stains. Having used peroxide of sodium for two or three years on this class of work I find it to be superior in every way. Any desired shade can be bleached without affecting the goods in any way. It leaves them in a better condition with more elasticity and there is no danger of leaving the goods tender. The bleaching vat should be made from white pine free from knots. Any other kind of wood will stain the goods no matter how long it has been in use on this kind of a bleach.

A new kettle should be boiled out with sal soda and afterwards bleached out before any goods enter the vat. This is to avoid wood stains. For a satisfactory bleach it is necessary to prevent any iron from getting into the vat. Iron finds its way into the solution in many ways. If the vat is old there may be some nail heads which should be covered with putty. In case there is iron in the water I use two ounces of phosphate of sodium to every one hundred gallons of water in the first bath and one ounce in the second. This throws the iron into an insoluble condition and prevents it from doing any harm. The sulphuric acid should always be added first and should be chemically pure; then add the sodium phosphate and after stirring up add the sodium peroxide which should be slowly poured into the vat with someone continually stirring up the water so as to prevent it from settling before it all dissolves. After it has been stirred up several times it is well to put on steam for a few minutes to make sure that no sodium has settled on the bottom of the kettle. The vat should be fitted up with a coil of lead pipe for heating up the kettle. One-quarter of an ounce of sulphuric acid neutralizes two pounds and one-quarter of sodium peroxide in one hundred gallons of water for one hundred pounds of goods.

I make up a bleaching solution for mixed

goods of 9 pounds of sulphuric acid, 7 ounces of sodium phosphate and 6 3/4 pounds of sodium peroxide and two hundred and fifty gallons of water for two hundred pounds of goods. After the bath is well stirred up and well neutralized, test with red litmus paper. If the paper remains red add a small portion of some kind of alkali, silicate of soda, until the paper turns blue. If the litmus paper turns blue on first testing add small portions of acid until the paper turns a faint red, as it is best to get it as near neutral as possible before throwing on to the alkali side. The liquor should be clear. If there is any white scum settled on the top it should be skimmed off. Then enter goods without crowding them too much and heat the bath to 130° F. Cover up goods and weight down under water and leave until next morning, when goods will be ready for taking out and draining. They should be thoroughly rinsed out in hot water to wash off the neutral salts that has settled on the goods while being bleached; if left in the goods will turn a dark color in time.

If it is a small concern which is making four or five different styles of goods with different percentages, it is well to make a stronger solution which will bleach out. The fabric with the least percentage of wool will be bleached out first and can be taken out any time of the night by the watchman and the others left in until bleached enough. It is best to bleach these goods to a good white, as in case of uneven yarn or uneven knitting they will show up more uniform. The second bath will take one-third less of chemicals. This bleach does not give satisfactory results on silk. It takes away the silk scroop, and scouring does not bring back the desired feel. By using salts and sulphate of magnesia better results can be obtained. Peroxide of hydrogen will bleach out quicker than peroxide of sodium as the temperature can be raised to 200° F. without reducing the strength of the vat. Peroxide of sodium should never be brought to over 160° F. as it loses the oxygen at that temperature. The length of time to run the bleaching solution depends on the cleanliness of the goods.

THE ONE DIP PROCESS.

From The Deutsche Faerber Zeitung.

All dyers have always envied the more simple and rapid methods of securing level and penetrating dyeings which are at the command of the cotton dyer, and they may now fairly be said to have reached their goal. The first step in the right direction was after-chroming in a single bath as a substitute for dyeing in a second bath on a chrome mordant. It has now been found, however, that the process can be simplified by adding the chrome salts from the very first to the dye bath. It is easy to see that if this can be done the change of shade which so often attends after-chroming, whether in the same bath or not, is prevented. When this change of shade is anticipated we find one of the most difficult tasks in the whole range of dyeing in making the necessary allowance for the change in the use of the bath before the chrome is added.

When the chrome is added at the beginning of the dyeing the duration of that operation is shortened. The manifold advantages which accompany rapid dyeing, when it is possible, are too well known to require recapitulation here. There is yet a further advantage. The addition of the chrome during the preparation of the dye bath neutralizes to a great extent the differences in dyeing brought about by the peculiarities of the different varieties of wool. For instance, the after-chroming method is extremely difficult to carry out with Levant wools.

The new process to be described has been already extensively adopted in yarn dyeing, and is making its way in piece dyeing, but somewhat more slowly just at present. It consists rather in using special and newly-discovered dyes than in methods of manipulation. At the same time there are certain special points in the dyeing methods, as will be seen from the following directions. The bath is made from the dye only to begin with. After it has been boiled up it is cooled down a little and a weight of bichromate equal to one-half to two-thirds of that

of the dye used is put in. If piece goods are to be dyed, 10 per cent. Glauber's salt is also added. The goods are now entered at from 175° to 200° F. After a short working at this temperature the bath is brought to a boil. After an hour's boiling from 2 to 3 per cent. of acetic acid is added, and the bath is boiled for another hour. If the process is carried out mechanically, it is advisable to have a little soap or ammonia in the dye bath and to exhaust by gradual additions of acetic acid.

WORSTED FINISHING.

BY SERGIUS.

(In Dyer and Calico Printer.)

In point of structure, worsteds differ from woolens by the threads being composed of parallel fibers, while woolens have their fibers crossed and interlaced at all angles. With the exception of raised or milled serges, worsted cloths depend upon the clearness of their design and the brightness and spring of the fabric for their good qualities, accompanied in the better cloths with a handle similar to that of a kid glove. Compared with woolens, worsted fabrics are of much later origin, and the great variety of design possible in them has caused faced cloth to become almost extinct.

Of late years worsteds have met with serious competition in the shape of cheap tweeds. These can be made at much lower cost than worsteds, owing to the ease with which cotton and shoddy can be combined to form a really attractive fabric. The worsted thread does not lend itself to a similar amalgamation with inferior materials without losing many of its valuable features, so that competitively it is at a serious disadvantage.

Cotton warp cloths with worsted wefts

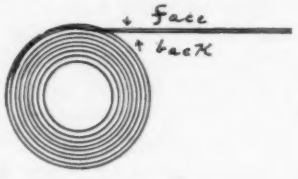
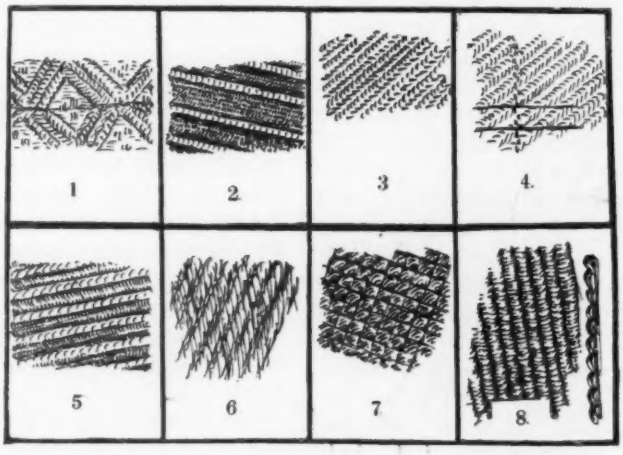


FIG. 9.

have been made in large quantities, but there is no getting away from the evidence of the cotton, which is lustreless and dead in comparison to the worsted. In view of the fact that worsteds cannot be imitated in shoddy, it is unlikely that they will be knocked out completely by the low grade tweeds. Already the public taste is reverting back to plain cloths, the market having been inundated with tweeds for the last few years.



FIGS. 1 TO 8.

In navy blues and creams, worsteds show up to their best advantage, and for tennis, yachting costumes, etc., they are without doubt the ideal cloth. Finishing these fabrics is comparatively simple, so far as the number of processes are concerned, but at the same time no other cloth is so susceptible to treatment or easier spoiled in careless handling. Figs. 1 to 8 have been given

to show the enlarged appearance of some standard designs.

It being impossible to obtain a good photographic reproduction, the next best thing is a careful drawing to convey general features and elucidate the finishing details. The oldest make of all is the corkscrew pattern seen in Fig. 8; this is a bold twill with a clean, round contour after the manner of its namesake the corkscrew. This design had a steady run for years, being the first to come out; now comparatively few are made, the fashion running more on to ordinary and chain twills, as shown in Figs. 3 and 4. Corkscrews require cutting very clean so as to bring the rib into prominence, while at the same time it must be kept round and well developed. As the nature of the screw required is to be tightly spun, this make of worsted required very careful treatment, due to its liability to crimp and water, which faults will be dealt with later. In common with nearly all rib designs, the screw ran diagonally across the fabric from right to left, the angle differing in various cloths. One reason for its loss of popularity was the tendency it had to wear shiny owing to the compact weave, some hard makes appearing as if they had been black leaded after very little wear.

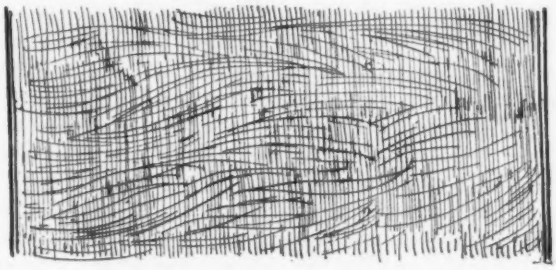
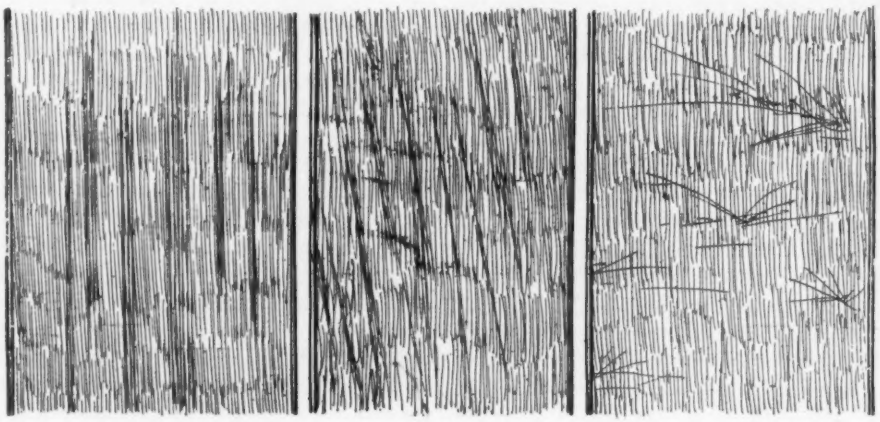


FIG. 10.

Figs. 1, 2, 5 and 7 are examples of fancy designs, combinations of twill and corkscrew weaves. These are very effective when carefully finished and are much less liable to develop faults than the corkscrew pattern. Fig. 6 is a very much exaggerated drawing of a venetian cloth or satin-face. It somewhat resembles a very fine screw with the threads running more vertically. The rib is so fine as not to be noticeable unless at close quarters, and the make is so bright and lustrous as to appear nearly like a faced woolen. For evening dress the worsted venetian is used largely in place of fine



FIGS. 11, 12, AND 13.

cloth and only by close examination can it be distinguished from it.

Formerly the best grade worsteds were all wool dyed, but the general custom is now to dye them in the piece with quite as good results as regards thorough penetration. Previous to dyeing, worsteds require crabbing and scouring, and these processes cannot be too carefully watched. Fine goods made from botany and Saxony wools are often scoured and dyed without the preliminary process of crabbing; but with low cloths crabbing is imperative and increases in importance with the poorness of quality. During the weaving of a worsted fabric there is considerable tension put on both in the direction of warp and weft, and all the fibers of the threads are under a strain. Upon water coming into contact with them the fibers swell up and contract, shrinking up the fabric both in width and length and with some cloths distorting and spoiling the design.

The chief object in crabbing worsteds is to wet them thoroughly with hot water while under tension on a roll, so that although the wool fibers contract, the fabric is not allowed to shrink and the design is kept straight. This has a considerable effect upon the cloth, preventing it from shrinking during the after processes of scouring and dyeing. The use of heavy top rollers in crabs employed on worsteds is quite unnecessary, and is more likely to do harm than good. Boiling water should be used, and strain put upon the entering cloth in proportion to what the design will stand.

The diagram, Fig. 9, represents the winding of a strained fabric on to a crab roller; when wound on it will be seen that the back of the cloth is in contact with the face from end to end. The result of this is seen sometimes in the fault known as watering, where the design of the back has been embossed on to the face showing a peculiar wavy effect. This fault is only visible when a large area of the cloth is seen at once, for instance, over the rails of a perch or coming over a steaming mill, and can rarely be seen in a made up garment.

Fig. 10 gives some idea of a watered effect as near as it is possible to show it in a diagram. Small samples of fabric do not show the fault, nor can it be reproduced from a photograph. Very hard and prominent designs water quickly. Some screws cannot be crabbed at all owing to their susceptibility for developing this fault, and others will only stand the slackest of tensions. Fig. 6, the venetian cloth, is very liable to this fault, due in a great measure to the soft receptive face it possesses and the fineness of the twill.

Twills and fancy designs generally are not so sensitive to watering as the closer made fabrics, and they are also much less liable to crimp. Concerning the cure for watering, there is only one way to remove it and that will not answer in severe cases. The remedy is to disturb the design slightly by a good soap scouring, or even a very gentle milling in the stocks. This causes a shrinkage, and the fibers being moved a little obliterates the embossing.

Crimps are another fault common to worsted cloths, and like watering they appear soonest in fabrics of hard make. They form by the cloth being allowed to remain in creases while hot and wet, as in this state the fabric is very soft and creases quickly. If lifted hot from the dyeing vessel, worsteds often show the form of crimp in Fig. 13, which are known as laid crimps, or crows' feet. They form by the plaiting down of the hot cloth into the coach, the bottom layers always suffering the most owing to the weight of the top ones. Prevention is best done by running cold water into the vessel before lifting, or the cloth may be run through a cooling tank before being piled into the coach ready for washing. Tanks for cooling purposes are often let into the ground in front of the cistern used for dyeing; when flush with the floor a pair of substantial hinged lids covers the tank at once, and when not in use the top forms part of the floor.

Fig. 12 illustrates the long vertical crimp often and erroneously known as wench marks. These are generally caused in the preliminary soap scouring, and sometimes in the washing off after dyeing. The most frequent cause is long running in one fold during scouring, aggravated by hot soap so-

lutions. Scourers' crimps are in 90 per cent. of cases fast and incurable, the crease being in severe cases broken. Hot liquors are great causers of crimps, and no higher temperature should ever be used for worsteds than what can be comfortably borne by the hand. Long running in the same crease is also a fruitful cause of this fault, and in many cases far too much soap is used, with the result of prolonging the scour in order to clear it out. Cold liquors rarely give rise to crimps, unless the squeezing rollers are exceptionally heavy or the cloth is overcrowded in the washer. With the idea of changing the form of crease, the cloth is often crossed at the back of the machine, so that two pieces instead of running in two endless bands run in the form of a figure eight. Open width scouring machines are recommended for goods with a tendency to crimp: they certainly keep the cloth open but take a long time to perform the work as the squeezing is slight.

If open width machines were absolutely true in rollers and running, and the fabric uniform also, they would scour without any need of attendants. Unfortunately most cloths made have slack and tight places in them, some in the lists, others in the middle. When this is the case the tight side of the cloth is bound to get in front of the other even with rollers which are dead true, the result being a small crease in the slack list every few yards. These tiny folds only extend a few inches into the cloth, and are caused by accumulation of slack material, but owing to the pressure exerted by the rollers the creases are permanent and disfiguring.

With open width machines the two squeezing rollers are made usually of brass and rubber covered iron respectively, while the pressure between them requires to be much more than rope scourers as there is no bulk of cloth to wring. For this reason a crease is often broken by the excess of weight.

Streaks in the direction of the warp may be due to either maker or finisher, and differ from crimps in being broader and straighter. Makers' streaks are seen in diagram 11, and can be readily identified by their running strictly parallel to the warp threads. Since this fault is due to warp defects it is impossible for the streaks to run diagonally. On the other hand it is just as impossible for a dyer or finisher to produce streaks which are perfectly straight, as a crease formed by the fabric running in rope form is always more or less on a slant. Streaks, unlike crimps, are not creases, but bands of lighter or darker shades caused by irregular scouring or washing.

CHLORINATED WOOL.

HERBERT P. PEARSON, M. Sc.

It is not generally realized in the trades most concerned to what a great extent the chlorination of wool fabrics is being practised at the present time. Its most important application has for its object the prevention of shrinkage in washing with soap and water. A wool fabric chlorinated in the manner to be described loses its felting and shrinking properties almost entirely, a phenomenon of which use is made by many manufacturers of all wool underclothing. I have examined several brands of wool underwear advertised as "guaranteed unshrinkable" by firms who undertake to replace any shrunk garment, and in every case I found that the wool had been chlorinated.

The only other extensive practical application of chlorination is in printing. It is quite impossible to print deep shades of black and some colors on wool delaines and other wool fabrics without first treating with chlorine. This causes the color to be taken up much more readily.

The actual process of chlorination being much the same for printed fabrics as for underwear goods, except that the extent of the treatment is less in the case of the former, it will suffice to describe a method used for the latter. Stated briefly, the process which experience has shown to be most suitable consists in immersing the goods in a solution of hypochlorite of soda to which hydrochloric acid is added, and thereafter treating with bisulphite to remove the yellow color produced by the chlorine and hypochlorous acid, and finally scouring with soap to restore the "handle."

Though solutions of hypochlorite of soda

are now supplied cheaply by alkali works employing the electrolytic process, it is found cheaper in many cases to prepare the solution from bleaching powder. This is done by dissolving the power in water in such quantities that the proportion of available chlorine in the solution is from 4 to 5 per cent., settling, decanting, and then precipitating the lime by adding sodium carbonate gradually while stirring. After settling, the clear liquid is decanted ready for use. It is well not to work with bleaching powder solutions of greater strength than 4.5 per cent. available chlorine, otherwise chlorate is likely to be formed, and this is objectionable on account of its strong yellowing action on the wool. One hundred gallons of a bleaching powder solution containing 4.2 per cent. available chlorine require one hundredweight of soda (97 per cent.). The resulting solution contains about 4 per cent. available chlorine, and has a specific gravity of 1.09. It is advisable to use this excess of soda, for its presence makes the subsequent formation of chlorine more gradual. Moreover, I have found that it prevents to some extent the yellowing of the wool.

Of this solution, containing 4 per cent. available chlorine, from one-half to one pint per pound of wool is required. A better "handle" is produced by adding this in two or three lots instead of all at once, and running off after five or six minutes' treatment in each lot of acidified liquor. Hydrochloric acid is run in gradually in the proportion of two-thirds of the volume of hypochlorite added in the first "end" and one-half in the second or third, this reduction being advisable in view of the fact that the pieces already contain acid when the liquor is run in the second time.

When the last end is completed, the goods are well rinsed and then treated, to restore the color, in a bath to which is added one gallon of sodium bisulphite to every hundred pounds of wool, a pint of vitriol diluted with water being slowly run in. An alternative to this bath is one of tin salts and hydrochloric acid. After rinsing again, the goods are scoured with soap and a very little soda, and finally rinsed off. It is essential that the acids be run in very slowly; the goods must be kept moving and occasionally squeezed, and the machine should be well covered in.

As regards the chemistry of the subject, no new observations appear to have been published within the last few years. Dry chlorine has no action on dry wool, and moderately chlorinated wool, according to tests I made some years ago, contains no combined chlorine. The fact that the presence of water is necessary points to the action being one of oxidation, and hence the term chlorination is not strictly scientific.

Excess of chlorine in presence of water converts the wool into a gummy mass, similar to lanuginic acid in its property of precipitating substantive dyes. The moderate chlorination employed technologically acts on the delicate edges of the scales of the fiber, which are seen under the microscope to have become smoothed down, this effect being probably due to the formation of small quantities of the gummy substance. The felting property of wool is said to be due to the interlocking and clinging together of the sharp, protruding scales of the fiber, and, if this be the case, it is easy to understand how the smoothing off of the scales decreases their clinging power, and thus reduces or destroys their property of felting.

(To be continued.)

Defects in Sponging.

Editor Textile World Record:

We enclose sample cut from a piece which before sponging was in good condition, but after being subjected to the ordinary steam sponging a number of red stripes appeared across the piece at irregular distances. Some of these stripes ran across the piece and some lengthways. Please let us know the cause of this discoloration.

Clifton (1056).

After a careful examination I find that this fabric is composed of cotton warp and worsted filling, and the change in color has taken place wholly in the warp threads, the filling threads not showing any change. I feel quite sure in saying that this cloth was colored in the piece by what is known as the one dip process, whereas the cotton and worsted is prepared and dyed in one bath. The cause of the change of color on the cotton is owing to the high temperature to which it has been subjected in the steaming

or sponging process. The color used in dyeing not being able to resist the action of the steam at this high temperature. If this piece was steamed hard enough the color in the warp would change throughout the whole piece. I would suggest sponging this fabric by the cold process. Finisher.

JIG DYEING.

Editor Textile World Record:

I have read with interest the various replies to the question regarding jig dyeing. Nevertheless I am still of the same opinion and stand firmly by what I wrote before, that a suitable aniline black cannot be dyed on a jig, putting aside all questions of cost. A few pieces to pass muster with a big line of colors may be got off that way, but they would not go with people that handle blacks as blacks. One correspondent writes of washing jig dyed goods in an open soaper. If he did regular jig work in an open soaper he would require fresh soap for every shade, and then have to redye his goods. A cold water wash is all that is expected of jig work. We have the developed and sulphur colors to stand soap, but their use on jigs is so limited as not to warrant special attention. Manhattan.

PENETRATING WOOL GOODS IN DYEING.

The oldest method of treating pieces which tend to dye unevenly is "earthing" thoroughly in a fuller's earth bath. Boiling with acetate of ammonia before adding the color is also resorted to, though, as this is not possible in the case of some dyestuffs, it is recommended to boil first with either 5 to 10 per cent. acetic acid or 2 per cent. ammonia. In any case it is advisable when dyeing with acid dyes to raise the temperature gradually before adding the vitriol.

The only precautions that can be taken in the case of indigo dyeing are seeing that the goods are perfectly clean and wet out beforehand with a little ammonia or soda, and having a pair of squeezing rollers under the liquor. Hard goods, or those made from badly washed wool are sometimes best dyed in the indigo vat before milling, and shaded off afterwards.

With Kapff's process difficult pieces are mordanted on a pad, and afterwards passed at width over a suction apparatus, it being claimed that this causes perfect penetration. The dyeing may be done similarly. In dyeing indigo this way the pieces are first impregnated with the liquor, then passed over the sucker, developed in the acid bath, and again passed over the sucker.—The Deutoche Wollen Gewerbe.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 49.

Black on Worsted Yarn.

Kresol Black B B on 100 lbs. worsted yarn. Prepare dye bath with

7 lbs. Kresol Black B B.
(Geisenheimer & Co., 189 Front St., New York.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 140° F., and dye at a boil for one hour. Kresol Black B B possesses good fastness to light, acids, stoving and washing.

Recipe No. 50.

Red on Cotton Yarn.

Benzo Fast Red 8 B L on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Benzo Fast Red 8 B L.
(Farbenfabriken of Elberfeld Co., 66 Lafayette St., New York City.)
2 lbs. Soda Ash.
40 lbs. Glauber's Salt.

Enter at 180° F., and dye at a boil for one hour. Benzo Fast Red 8 B L possesses excellent fastness to light.

Recipe No. 51.

Violet on Worsted Piece Goods.

Amazo Violet 5 B on 100 lbs. worsted goods. Prepare the dye bath with

2 lbs. Amazo Violet 5B.
(American Dyewood Co., 84 William St., New York.)
3 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter goods at 120° F., bring slowly to a boil and boil for one hour.

Amazo Violet 5 B is a rich, level dyeing of excellent covering and lifting powers. It will be found useful in the production with other Amazo types of fashionable shades and of blues on woolen piece goods. It may also be employed with advantage on yarns and other forms of wool. This color withstands a medium fulling well.

Recipe No. 52.

Brown on Cotton Yarn.

Diamine Brown 5 G Patented on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Diamine Brown 5 G Patented.
(Cassella Color Co., 182 Front St., N. Y.)
¾ lb. Soda Ash.
25 lbs. Glauber's Salt.

Enter yarn at 180° F. and dye at a boil for one hour.

Diamine Brown 5 G Patented will be found to be an excellent color for the dyeing of hosiery.

Recipe No. 53.

Blue on Worsted Piece Goods.

Amazo Brilliant Blue G on 100 lbs. worsted goods. Prepare the dye bath with

2 lbs. Amazo Brilliant Blue G.
(American Dyewood Co., 84 William St., N. Y.)
3 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter material at 120° F., bring slowly to a boil and boil 1 hour.

Amazo Brilliant Blue G is a rich, eminently level dyeing blue of good fastness to light and of great lifting power. It will be found especially suitable in combination with other Amazo types for the coloring of fashionable combined shades and of blues on woolen piece goods. It may also be employed with advantage on yarns and other forms of wool. This color withstands well a medium fulling.

A combination of Amazo Brilliant Blue G and Amazo Violet 5 B (Recipe No. 62), is shown in this issue. These two colors are also admirably adapted for strengthening and lifting dark and medium navy blues.

Recipe No. 54.

Brown on Cotton Yarn.

Chlorazol Catachine B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Chlorazol Catachine B.
(Read Holliday & Sons, 11 Gold St., N. Y.)
20 lbs. Common Salt.

Enter at a boil and dye for one hour.

Chlorazol Catachine B possesses excellent fastness to light, washing and alkalies.

Recipe No. 55.

Yellow on Cotton Yarn.

Oxydiamine Yellow on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Oxydiamine Yellow C R.
(Cassella Color Co., 182 Front St., N. Y.)
½ lb. Soda Ash.
25 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour.

Oxydiamine Yellow C R possesses high coloring power and very good fastness for a direct cotton color.

Recipe No. 56.

Black on Cotton Yarn.

Columbia Fast Black V Extra on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Columbia Fast Black V Extra.
(Berlin Aniline Wks., 213 Water St., N. Y.)
20 lbs. Glauber's Salt.
2 lbs. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Columbia Fast Black V Extra yields a greenish black which, however, in a short time shows a fine violet-black bloom.

Its fastness in most respects is very good, and on account of its good solubility is well adapted to machine dyeing and the dyeing of piece goods in the jigger.

Recipe No. 57.

Violet on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthra Chrome Violet R.
1 lb. Fast Chrome Blue G.
(C. Bischoff & Co., 451 Washington St., N. Y.)
5 lbs. Acetic Acid.
15 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and dye at a boil until the bath is exhausted. Then after-treat at a boil for 3/4 of an hour in a bath made up with

2 lbs. Potassium Bichromate.

The shades produced by this combination are exceedingly fast to sunlight and fulling.

Recipe No. 58.

Crimson Red on Cotton Yarn.

Benzo Fast Bordeaux 6 B L on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Benzo Fast Bordeaux 6 B L.
(Farbenfabriken of Elberfeld Co., 66 Lafayette St., N. Y.)
2 lbs. Soda Ash.
40 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour.

Benzo Fast Bordeaux 6 B L possesses excellent fastness to light.

Recipe No. 59.

Blue on Cotton Yarn.

Oxamine Blue R S on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Oxamine Blue R S.
(Badische, 128 Duane St., N. Y.)
½ lb. Soda Ash.
30 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Oxamine Blue R S possesses the property of not being precipitated in the presence of inorganic acids and may be used for the topping of indigo dyed material.

Recipe No. 60.

Green on Worsted Yarn.

Chromoxal Green B on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Ammonium Oxalate

and boil up the bath for a few minutes, then add

3 lbs. Chromoxal Green B.
(Berlin Aniline Wks., 213 Water St., N. Y.)

which has been dissolved in some of the ammonium oxalate solution from the dye bath.

Boil up the bath again, cool a little and then enter the material and after dyeing at a boil for one hour add

1 lb. Sulphuric Acid (well diluted).

Boil one-half hour longer and add

2 lbs. Potassium Bichromate.

After this last addition boil three-quarters of an hour.

Chromoxal Green B possesses very good fastness to most of the common color-destroying agencies, possesses good penetrating and leveling properties and is of very high coloring power.

Recipe No. 61.

Yellow on Cotton Yarn.

Stilbene Yellow G X on 100 lbs. cotton yarn. Prepare the dye bath with

12 ozs. Stilbene Yellow G X.
(Badische, 128 Duane St., N. Y.)
25 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour.

Stilbene Yellow G X gives very pure shades and is low in cost. It also possesses excellent fastness for a direct cotton color and should be found worthy of consideration.

Recipe No. 62.

Blue on Worsted Piece Goods.

Amazo Brilliant Blue G and Amazo Violet 5 B on 100 lbs. worsted goods. Prepare the dye bath with

4 ozs. 165 grs. Amazo Brilliant Blue G.
5 ozs. 103 grs. Amazo Violet 5 B.
(American Dyewood Co., 84 William St., N. Y.)
3 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter goods at 120° F., bring slowly to a boil and boil one hour.

Amazo Brilliant Blue G is shown under Recipe No. 53 of this issue and Amazo Violet 5 B under Recipe No. 51 of this issue. These two rich, level dyeing Amazo types possess great covering and lifting powers. They are excellently adapted to produce bright medium blues and for strengthening and lifting medium and dark navies. They withstand fulling well and may be employed to advantage on all forms of wool.

Recipe No. 63.

Black on Worsted Yarn.

Kresol Black 6 B on 100 lbs. worsted yarn. Prepare the dye bath with

7 lbs. Kresol Black 6 B.
(Geisenheimer, 189 Front St., N. Y.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 140° F. and dye at a boil for one hour.

Kresol Black 6 B possesses good fastness to light, stoving and washing.

Recipe No. 64.

Red on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthra Chrome Red A.
½ lb. Domingo Alizarine Yellow R Extra.
(C. Bischoff & Co., 451 Washington St., N. Y.)
5 lbs. Acetic Acid.
15 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil until the bath is exhausted. Then aftertreat, at a boil, for 3/4 of an hour in a bath made up with

2 lbs. Potassium Bichromate.

The shades produced by this combination are exceedingly fast to sunlight and fulling.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*Alabama, Columbia. A. D. Wood is making good progress on his new cotton mill reported last November. As stated in earlier reports it will have capacity of 10,000 spindles and he would like to lease the complete plant to suitable parties.

*Georgia, Ballground. Dimensions of the Ballground Cotton Mills will be as follows: Dye house, 72 by 75 ft., 1 story high; slasher room, 56 by 75 ft., 1 story high; picker room, 32 by 75 ft., 2 stories high; power plant and machine shop, 40 by 120 ft.; and main mill, 320 by 75 ft., 2 stories high. The capital stock of the company is $250,000, with $150,000 subscribed. They are anxious to secure northern capital to assist in putting the proposition through. They expect to begin manufacturing about November 1 with 10,300 spindles and 330 looms. Indigo denims, tickings, plaids, drills, duck and similar goods will be made. Frederick Abbott is president, superintendent and buyer. J. E. Farmer is treasurer.

*Georgia, Hawkinsville. Manufacturing has been started by W. H. Murray & Son in their cotton towel plant; but complete equipment has not been installed. 20 new looms will shortly be added. W. H. Murray is president and treasurer, George F. Murray is agent and buyer. The product is sold direct.

*Georgia, Manchester. Contract for the erection of the Manchester Cotton Mills has been awarded to Pike Bros., of LaGrange, Georgia. Details of this project have been given.

*Maine, Oldtown. C. C. Garland is sending out a prospectus of the proposed cotton mill. Previous reports of this enterprise have been given.

New York, Lestershire. John S. Patterson and associates have started a plant on towels. Mr. Patterson's address is 71 Main St.

North Carolina, Burlington. S. L. Williamson & Bro. are operating 40 looms on shirtings in a frame building, formerly used as an ice manufacturing plant, under the style of the Williamson Mfg. Co. A gasoline engine has been installed for motive power.

*North Carolina, Durham. The directors of the Erwin Cotton Mills Co. have definitely decided to locate the new mill at West Durham. This will be a 50,000-spindle mill, with looms to weave the yarns into gray goods, principally wide sheetings. Preparations to begin construction are under way.

*North Carolina, Lexington. Plans of buildings for the Dacotah Cotton Mills have been prepared and contract for construction of buildings will soon be awarded. The plans include a main structure 100 by 200 feet, with separate dye house, boiler room, etc. This company was incorporated in December with capital stock of $125,000, all paid in. C. A. Hunt, Jr., is president, superintendent, and buyer.

*North Carolina, Marion. Within the next few days D. D. Little of Spartanburg, S. C., will organize the Marion Mfg. Co., and within thirty days construction work will be started on buildings with capacity of 12,500 ring spindles and 300 looms. The capital stock of the company will be $250,000. Mr. Little will be president and treasurer. Brown sheetings will be the product.

*North Carolina, Smithfield. About April 15, construction work will be started on a 5,000-spindle cotton yarn plant for the new Ivanhoe Mfg. Co. They intend to begin manufacturing about November 1. 18s to 30s warp and hosiery yarns will be the product, and will be sold through Catlin & Co. Contracts for machinery supplies have not been placed. W. M. Sanders is president and F. K. Broadhurst is treasurer and buyer.

Enlargements and Improvements.

*Connecticut, Danielson. Ninety-six looms have been removed from the small weave shed of the Danielson Cotton Co. to the new building under construction. The old weave shed will now be torn down and a new building erected on the land.

Connecticut, Greenville. The Shetucket Co.'s plant has resumed manufacturing after a shutdown of one week for necessary repairs. The company will install a new boiler to provide steam for the dye house.

Connecticut, Montville. A number of spinning frames have been received at the old Pequot Mills, and will be set up and operated as soon as possible. The property was bought some time ago and is being operated by Charles E. White of the Uncasville Mfg. Co., Uncasville, Conn.

*Connecticut, Packerville. The enlargement to the weaving department of the Cutler Mills Co. consists of 18 new looms.

*Connecticut, Willimantic. Machinery is being moved into No. 6 Mill of the Willimantic Mills (American Thread Co.) and it is hoped to have this mill in operation soon after April 1.

*Georgia, Columbus. The Hamberger Cotton Mills will erect a new building as reported previously and may add 5,000 spindles with looms and preparatory machinery.

*Georgia, Griffin. The enlargement to the Spalding Cotton Mills, reported proposed, has not yet been definitely decided as the matter has not been passed upon by the board of directors. It is probable that the increase will be made.

*Georgia, Lafayette. An enlargement will be

built for the Lafayette Cotton Mills, and new machinery will be installed, comprising equipment for a new slasher room, 2,000 spindles and 40 looms. Plans for the proposed changes have been prepared and contracts will be awarded at an early date.

*Georgia, LaGrange. John F. Grandy & Son, Greenville, South Carolina, have received contract to build Unity Mill No. 2. Fuller E. Callaway is treasurer of the Unity Cotton Mills.

Georgia, West Point. The West Point Mfg. Co. contemplates adding 10,000 spindles and 100 looms to the Shawmut Mill.

*Maine, Biddeford. In addition to the installation of 30 motors in the different rooms of the Pepperell Mfg. Co.'s plant, the company will spend several hundred thousand dollars during the year on enlargements and improvements. A new weave shed, 385 by 135 ft., will be built along the canal. A large turbine engine is being installed.

Maryland, Elk Mills. It is reported that the Baldwin Manufacturing Co., manufacturers of upholstery goods on 72 looms, which they dye and finish and sell direct, have in contemplation the building of a 100-foot addition to their present plant.

*Massachusetts, Easthampton. Changes at the Hampton Co.'s plant consist merely in taking down a wood wall and putting up a brick wall in its place to reduce the fire risk.

Massachusetts, Fall River. The Bourne Mills have awarded contract for seven new boilers. The work of installing them will probably begin in about six or eight weeks.

Massachusetts, Fall River. Extensive improvements are in contemplation by the directors of the Osborn Mills. Most of the changes will be made in No. 1 mill, where new carding machinery will be installed.

Massachusetts, Holyoke. More room is needed by the Bullard Thread Co. and another floor will be equipped with new machinery.

Massachusetts, Lowell. A large 2-story dye house will be built within a short time for the Appleton Co.

*Massachusetts, New Bedford. Contract for the construction of the new building for the Pierce Mfg. Corporation has been awarded to the J. W. Bishop Co. The structure will be of brick construction with tar and gravel roof. Details of this enlargement have been given.

Massachusetts, New Bedford. Two new mills will be erected for the Dartmouth Mfg. Corporation, and the ground is now being broken by J. W. Bishop Co., of Providence, who have received contract for construction work. One mill will be 2 stories high, 350 by 100 feet, and the other will be 3 stories high, 400 by 100 feet. There will not be any new stock issued to pay for the new buildings. The present intention of the managers is to put out about $350,000 in 5 per cent. bonds. The new mills will manufacture plain and fancy cotton cloth.

*Massachusetts, Newburyport. The Peabody Mfg. Co. has started up after a five months' shutdown, as reported in a previous issue of the Advance News. They are planning to run about 26,000 ring spindles, all of which are new, and a large proportion of which are already installed. This equipment is being installed by the Easton-Burnham Machine Co. of Pawtucket. They will run about 700 looms and employ from 300 to 350 hands.

*Massachusetts, North Adams. Construction work will be started before April 1 on the new building for the Greylock Mills. The new spinning mill will be 4 stories high, 125 by 102 feet. The new weave shed will be 225 by 102 feet, 1 story high. In addition to these buildings a new power plant will be erected. It is planned to have these additions completed and to be running before the end of the year. Fine cotton lawns will be the product. The capital stock of the company will be $400,000 after July 10. The enlarged equipment will be 28,000 ring spindles, 28,000 mule spindles, and 1,200 looms. Wellington Smith is president, W. B. Plunkett is treasurer, W. C. Plunkett, agent and buyer and George J. Crosier is superintendent.

Massachusetts, Salem. A new weave shed, 250 by 200 ft., will be built for the Naumkeag Steam Cotton Co. Several tenement buildings will be torn down to make room for the new structure.

Massachusetts, Waltham. One hundred and sixty new Northrop looms have been installed in No. 3 Mill of the Boston Mfg. Co., making total equipment of 25,632 mule spindles, 37,700 ring spindles, and 1,545 looms.

New York, Victory Mills. A number of new looms have been added to the weaving department of the Saratoga Victory Mfg. Co.

*New York, Waterford. In about three months the new cotton yarn mill, under construction for the Kavanaugh Knitting Co., will be ready for use. This is a 3-story structure, 105 by 229 feet. 10,000 ring spindles will be installed for making 19s to 34s combed yarns for use in the knitting mill owned by this company and also for the trade.

North Carolina, Bessemer City. The Huss Mfg. Co. has been incorporated with capital stock of $100,000 by C. J. Huss, John J. Ormand, R. F. Cable and others. The new corporation succeeds C. J. Huss & Co., who operated 48 broad looms on damask goods. There will be a 50 by 130 ft. addition and spinning equipment will be installed. Organization has not been completed, but it is probable that Mr. Huss will be elected secretary, treasurer and general manager.

North Carolina, Burlington. All the old machinery in the Lakeside Mills is gradually being replaced by new equipment. They have recently installed 10 new cards, and new drawing machinery, and are taking out the old looms and installing new Crompton & Knowles looms. L. A. Thompson is now superintendent. They manufacture plaids.

North Carolina, Chapel Hill. In purchasing the Blanch Hosiery Mills and the Alberta Cotton Mills, Julian S. Carr was acting for the Durham Hosiery Mills, Inc., of Durham, N. C., of which

he is president. The Durham Hosiery Mills will take possession of both plants on April 1 and will consolidate them under one roof, and operate them under the name of the Durham Hosiery Mills N. 4. In the future the Durham Mills will sell yarns as well as hosiery.

*North Carolina, Concord. Contract has been awarded by the Locke Cotton Mills Co., for rebuilding the Odell Mill No. 4 as reported last week. 12,000 spindles have been ordered.

*North Carolina, Greenville. The additional mill to be constructed for the Woodside Cotton Mills is expected to be completed by December. Complete details of this enlargment hav been given.

North Carolina, Haw River. New machinery has been installed in No. 1 Mill of the Holt-Granite Mfg. Co. and they expect to have this department in full operation within a short time. B. S. Robertson is president; C. B. Wright, vice president; John A. Trolinger, treasurer, and J. and W. J. Thompson, superintendents.

North Carolina, Hillsboro. Machinery for long chain dyeing is being installed in the dyeing department of the Eno Cotton Mills.

*North Carolina, Kannapolis. Three hundred looms will be installed in the addition recently reported to be erected for the Cannon Mfg. Co. Stuart W. Cramer is engineer in charge.

*North Carolina, Laurinburg. Installation of 2,000 additional spindles in the Scotland Cotton Mill has been completed.

North Carolina, McAdenville. Contract has been awarded for 3,000 spindles to be installed in No. 3 Mill of the McAden Mills.

*North Carolina, Monroe. Arrangements have not been made as yet by the Icemorlee Cotton Mills Co. for the erection of the proposed additional mill. The new mill is to have 5,000 spindles, practically doubling the company's facilities.

North Carolina, Rockingham. Two additional stories will be built on the main building of Leak, Wall & McRae. They will spend about $8,000 for building and new machinery. Seven thousand ring spindles and 200 looms are operated on cotton goods.

North Carolina, Rosemary. No. 2 Mill of the Rosemary Mfg. Co. has been completed and new machinery is being installed for manufacturing cotton damasks.

*North Carolina, Salisbury. Stock will be issued by the Vance Cotton Mill to build during the summer a new mill to be equipped with about 200 looms. At the present time their plans are not fully developed. The project depends on the demand for stock. They operate 10,000 spindles on cotton yarns.

*North Carolina, Selma. M. C. Winston is president of the Ethel Cotton Mills; C. W. Richardson, vice president; W. D. Anderson, secretary and treasurer. This is a reorganization of the Selma Knitting Mills. The new company is erecting a one-story brick building, adjoining the knitting plant, 102 by 181 feet, which they will equip with 5,000 spindles for manufacturing 8s to 16s hosiery yarns. The cotton mill will be in charge of C. S. White, superintendent. The hosiery plant, in which 176-needle half hose is manufactured, has been increased to 60 knitters, 14 ribbers, and 15 loopers, and will continue under the management of R. S. Beavers.

North Carolina, Weldon. A new building has been completed for the Shaw Cotton Mills, Inc., and machinery equipment is now being removed from the old building. The plant will be run in future on 30s hosiery yarns in addition to 20s to 30s warp yarns.

Pennsylvania, Clifton Heights. An addition is under construction for Nelson Kershaw, manufacturer of Turkish towels. It will be 2 stories high, and will be used as a bleachery, dye house and finishing department. The enlargement will be completed in about six weeks.

Pennsylvania, Philadelphia. A number of old looms in the Waverly Mills, William Clarke, proprietor, are being taken out and new high speed looms set up. They manufacture table damasks on 134 broad looms.

Pennsylvania, Philadelphia. The Aberfoyle Manufacturing Co. are arranging for the installation of two 120 h. p. boilers in their annex at Walnut Lane and Cresson St., Manayunk. It is also said that the company has in contemplation, at some time in the near future, the erection of a large addition to the mill.

*Rhode Island, Ashton. The proposed changes at the Ashton Mills are not far enough advanced to allow any information to be given.

Rhode Island, Warren. Contract has been placed by the Warren Mfg. Co. for a new weave shed with capacity of 600 looms.

*South Carolina, Anderson. The increase in equipment at the Gluck Mills comprises the installation of 1,536 new spindles. No other enlargement is contemplated. They manufacture fine lawns on 31,744 ring spindles and 672 looms, operating by steam power. Robert E. Ligon is president, treasurer and buyer.

*South Carolina, Charleston. The dyeing department being erected for the Royal Bag & Yarn Mfg. Co. will be equipped for dyeing raw stock. The company expects to have it in operation about April 15.

South Carolina, Chester. Contract has been made with the Southern Power Co. by the Wylie Mill for 250 h. p. and after April 1 the plant will be operated by electric instead of steam power.

*South Carolina, Chester. Additions will be erected to the Eureka Cotton Mill and Springstein Mills, upon the completion of which a part of the equipment of the Springstein Mills will be removed to the Eureka Mill, and new equipment will be purchased for the Springstein Mills. It is intended to make a finer product.

*South Carolina, Easley. Construction work was not started on the proposed new mill for the Easley Cotton Mill as scheduled; but J. M. Geer, president of the company, states that they will probably build it during the summer. They plan

to erect a 4-story building, 130 by 249 ft., and install 25,000 spindles and 600 looms, to be driven by electric power.

*South Carolina, Gaffney. Plans for the enlargement of the Globe Mfg. Co.'s plant are not sufficiently matured to say what extensions or improvements will be made. It is not likely, however, that they will erect a new mill, other than a small addition to their present building. L. G. Potter is president and treasurer. It will be remembered that a proposition to increase the capital stock from $50,000 to $200,000 will be placed before the stockholders April 5.

*South Carolina, Gaffney. It is reported that the Gaffney Mfg. Co. has begun the installation of 12,000 additional spindles which they proposed to add when the demand for their products justified the enlargement.

*South Carolina, Greenville. Fiske-Carter Construction Co. of Worcester, Mass., will build the addition to the Woodside Cotton Mills and 80 dwelling houses. The new mill building will be of brick construction, 285 by 130 feet, 4 stories high. Construction work will not be started for some time.

*South Carolina, Inman. The addition recently completed for the Inman Mills will be equipped with 13,600 spindles and 340 looms for manufacturing sheetings. All machinery contracts have been awarded.

*South Carolina, Rock Hill. It is reported that the Hamilton Carhartt Cotton Mills will build an addition. 140 by 140 ft., to be equipped with 400 looms for manufacturing denims. It is understood to be in addition to the enlargement on which construction work was begun in 1908.

*South Carolina, Wellford. Nothing definite has been decided in regard to the proposed equipment of a spinning department for the Jordan Mfg. Co. Plans under consideration call for the equipment of a spinning department to furnish yarns for their equipment of 36 looms operated on towels and quilts.

Tennessee, Fayetteville. Plans and specifications for the proposed enlargement of the Elk Cotton Mills are in the hands of the engineer. They call for 4,000 ring spindles, to be operated on 30s to 40s yarns. Stuart W. Cramer, Charlotte, N. C., has the matter in charge. They have not contracted for machinery equipment as yet, and will not be ready for several weeks.

*Virginia, Danville. The management of the Dan River Power & Mfg. Co. has definitely decided to build the proposed additional mill. The building will be 3 stories high, 150 by 550 feet, and will be equipped with 45,000 spindles and 1,500 looms. It will be operated by electric power, generated by water with an auxiliary steam plant. Lockwood Greene & Co., of Boston, are the architect-engineers in charge and are now preparing plans. This addition will represent an investment of approximately $1,000,000, and the company may increase its capital stock from $3,000,000 to $3,500,000. It will take at least the balance of this year to build.

Mills Starting Up.

Alabama, Demopolis. The Elmore Mfg. Co. has bought the manufacturing property of the Bessie Minge Mfg. Co. and will operate the plant under the management of J. W. Sanders of Tuscaloosa, Ala.

*Georgia, Dublin. After a shut down of several months, during which time there was a reorganization and change of name from the Dublin Cotton Mills to the Georgia Cotton Mills, the local mill has resumed manufacturing with C. C. Cooper of Eatonton in charge as manager, and former superintendent P. L. West as superintendent. The mill has an equipment of 8,000 spindles and 400 looms.

*Georgia, Hawkinsville. The Hawkinsville Cotton Mills resumed manufacturing on March 2. W. H. Murray is superintendent.

*North Carolina, Concord. The Gibson Mfg. Co., which shut down several weeks ago, following the collapse of one of its buildings, has resumed manufacturing.

WOOLEN.

New Mills.

Connecticut, Elmville. The new worsted company in which William B. Dunn and H. P. Brigham are interested has been incorporated with capital stock of $50,000 under the style of the Thistle Worsted Co., $23,000 paid in. Some repairs will be made to the Brigham mill, and it is expected to be about two months before the new company will be ready for manufacturing.

*Massachusetts, Franklin. A new concern known as the Congress Mills has leased space in the Franklin Yarn Co.'s mill, and will operate 24 looms on worsted dress goods. G. Buel Palmer, formerly connected with the Musketaquid Mills, Lowell, is agent and buyer. They will begin manufacturing as soon as possible, buying all worsted yarns. Joseph Oldfield, formerly employed by the Aetna Mills of Watertown, will be in charge of weaving.

Massachusetts, Lowell. Mark Ingham, formerly superintendent of the Moore Spinning Co., North Chelmsford, Mass., is at the head of a project to establish a worsted yarn plant in the building on Lawrence St., formerly occupied by the American Bolt Co. Machinery is now being installed.

*Massachusetts, Monson. Five sets of cards and 30 looms will comprise the equipment of the new Ellis Mill. Dwight W. Ellis will be agent, George W. Ellis, superintendent, and Arthur D. Ellis attends to the buying. They will have a complete dye house for piece dyeing. The product, which will be dress goods and billiard cloth, will be sold by Vreeland & Wilson, New York.

*New Hampshire, Gonic. On March 1, E. M. Boocock & Son began the manufacture of carpets and rugs. They do business under the title of the Philadelphia Carpet & Rug Works. Within a short time construction work will be started on a new mill to be erected for them in West Rochester. Brussells carpets and royal Wilton carpets and rugs are manufactured.

*New York, Seneca Falls. Robert Weichert, president, treasurer and buyer of the United Woolen Mills Co., has secured the Seneca Falls Woolen Co.'s property and expects to begin manufacturing about April 15. Woolen and worsted dress goods will be manufactured. The plant is equipped with 9 sets of cards, 40 looms, and complete dye house. The United Woolen Mills Co. has capital stock of $125,000. Mr. Weichert's address is 418 Bay State Building, Lawrence, Mass.

*Oregon, Pendleton. Messrs. Bishop of Salem, Ore., will erect at once new buildings for the equipment of the Pendleton Woolen Mills, which were recently purchased by them. They expect to have the building completed by June 1. Blankets and robes will be manufactured. There will be a complete dye house for dyeing raw stock and the plant will be operated by electric power. The equipment comprises 2 sets of cards and 15 looms. It will operate under the style of the Pendleton Woolen Mills. C. P. Bishop is president, C. N. Bishop is treasurer, and Roy T. Bishop is agent and superintendent. They are interested in complete supplies and finishing machinery.

Pennsylvania, Philadelphia. Sylvester Rothwell has leased the third floor of the building at the north east corner of Second and Diamond Sts., in which he is installing 16 looms for the manufacture of woolen and worsted goods.

*Pennsylvania, Philadelphia. Application will be made for a charter for the Hasley Mfg. Co. on March 22. The capital stock will be $10,000. The officers and equipment have been given in a previous report.

Pennsylvania, Philadelphia. Al. Elliott and George Olden have formed a partnership under the style of Elliott & Olden and will begin manufacturing men's wear and dress goods on 24 narrow looms at 2731-35 North 6th St. within a few days.

*Rhode Island, Allendale. New machinery for the Allendale Worsted Mills is being installed but it will probably be several weeks before the plant is ready to start up, as improvements to the power plant are not completed. Henry A. Kirby is president and treasurer of this company, and George Darsie is general manager and secretary.

*Rhode Island, Bridgeton. Machinery is expected at the Bridgeton Worsted Co.'s plant, and they will begin manufacturing about April 1. 1,800 spindles will be operated on fine worsted yarns. A. Jowett is president, and D. H. Reese is treasurer. The company has capital stock of $50,000, and will sell the product direct.

*Rhode Island, Pawtucket. A building will be erected on Barton St., for the Tamarack Co., the new corporation organized in October, 1908, with capital stock of $100,000. The structure will be two stories high, 197 by 159 feet, and will cost in the neighborhood of $30,000. In a recent report of this company it was stated that they will operate 100 looms. Forty looms have been operated in the plant of the Jenckes Spinning Co. William P. Wood and John E. Lent are interested in the Tamarack Co.

*Tennessee, Lebanon. Construction work has been started on buildings for the Lebanon Woolen Mills. As reported previously, this will be a 2-set mill, and will manufacture blankets.

Enlargements and Improvements.

Connecticut, Bridgeport. The Salts Textile Mfg. Co. will build an enlargement and increase the present equipment by 20 looms and 2 dyeing machines.

Connecticut, Hanover. Angus Park, treasurer and general manager of the Airlie Mills, Inc., has purchased a quantity of second hand machinery which is now being installed.

*Maine, Foxcroft. Spinning machinery and other equipment is being installed in the new mill recently completed for Mayo & Son, Inc.

*Massachusetts, Agawam. The addition to the Agawam Co.'s plant will be 38 feet long, and is being built to accommodate 8 new Knowles looms and additional finishing machinery. They expect to have the enlargement completed some time in June.

*Massachusetts, Blackinton. The new Blackinton Mill addition is to be larger than was at first planned. The dimensions have not been given out.

*Massachusetts, Boston. The Eastern Worsted Co. will begin manufacturing March 8. They will do scouring and carbonizing for the trade and manufacture tops. J. R. Milson is manager. The plant is located at 696 E. 1st St., South Boston.

*Massachusetts, Holyoke. Contract for a large addition to the Farr Alpaca Co.'s Jackson St. mill has been awarded and construction work will be started at once. Plans call for a 4-story building, 200 ft. long and 54 ft. wide, of brick construction. It is intended to finish this enlargement this year. Good progress is being made on the large dye house begun last year. The new dye house will be in use in the fall according to present plans. The company is not ready to announce plans for the new mill to be erected on Bigelow St. on the land recently purchased from the Water Power Co. and states that much will depend upon the action Congress takes on the tariff.

Massachusetts, Lawrence. Section "D" of the Wood Worsted Mills is being extended. It is understood that the new space will be used for storage purposes.

Massachusetts, Medway. The Pine Tree Worsted Co., which has been operating a mill at Elmville, Conn., has leased the Medway Woolen Mill and will start up at once and run night and day on orders. This mill has been closed for some time and was recently sold at auction and bought by Samuel E. Hull of Millbury, who has leased it to these parties.

Massachusetts, North Andover. Plans and specifications have been prepared for a new mill to be erected for the Brightwood Mfg. Co. The structure will be of brick, about 250 feet long, 80 feet wide, and 2 stories high. Contract for construction work will be let shortly.

Massachusetts, Pittsfield. An order for 25 looms has been placed by the Pontoosuc Woolen Mfg. Co., on which they will weave a line of worsted goods. It is the intention of the company to make both woolen and worsted goods.

Massachusetts, Saugus. It is reported that the United States Worsted Co. will erect a 4-story mill at the Saugus Mfg. Co.'s plant and will install additional looms.

*Massachusetts, South Barre. The new building under construction for the past three months for the Barre Wool Combing Co., Ltd., is ready for the roof.

New Jersey, Camden. William Lund & Son have recently purchased a mill in Valley Forge, a short distance from Philadelphia, which they will have remodelled and into which they will remove both their plants some time during the coming fall.

*New Jersey, Passaic. A new brick building, 3 stories high, giving 25,000 more square feet of floor space, will be erected for Samuel Hird & Sons. A short time ago this company was incorporated with capital stock of $250,000 to take over the business of the Robertsford Worsted Mill.

New Jersey, Millville. The office and show room of the Millville Carpet and Rug Works, James E. Smith, proprietor, have been enlarged and they expect in the near future to enlarge the cutting, finishing, and weaving departments. These changes will be made in the spring if business warrants it.

*New York, Lestershire. The new power plant for the Faatz Reynolds Felting Co. has been completed and is in running order.

North Carolina, Kernersville. The Crews Mfg. Co. will rebuild the woolen blanket mill, burned sometime ago, with loss of $20,000.

*Ohio, Cleveland. The addition to the power plant of the Cleveland Worsted Mills Co. consists of one 2,000 h. p. engine attached to a 1,500 k. w. generator.

*Ohio, Cleveland. The new building to be erected for the Northern Ohio Blanket Mills, The Beckman Bros., proprietors, will be located on West 33d St., S. W. It will be 75 by 150 feet, of saw-tooth roof construction, 1 story high, and will be used mainly as a rag sorting and carbonizing department. They will do both wet and dry carbonizing.

Ohio, Piqua. Arrangements have been completed by the Orr Felt & Blanket Co. for a large new mill building. When the new structure is completed the two factories now occupied will be consolidated.

Pennsylvania, Chester. A two-story addition, 60 by 60 feet, will be built for the Emmott Worsted Spinning Co. They manufacture worsted weaving and knitting yarns, 2/16s to 2/40s, on the Bradford system.

Pennsylvania, Chester. Construction work has just been started on a one-story addition, 180 by 100 feet, for the Chester Worsted Co. The new building will be used as a wool sorting department and warehouse.

Pennsylvania, Clifton Heights. It is rumored that the Thomas Kent Mfg. Co. will build a new mill in this vicinity.

*Pennsylvania, Lenni Mills. The addition under construction for the Yorkshire Worsted Mill will be completed about July 1, and will have 2 sets of cards and 40 new looms. Two new boilers also will be installed, each of 350 h. p. A new dye house will be erected, 60 by 130 ft. They manufacture men's wear woolens and worsteds.

*Pennsylvania, Philadelphia. The Brighton Worsted Co., now located at Howard & Palmer Sts., report that they are about to remove to their new building at Tioga and D Sts. This building is two stories, of brick, 160 by 50 ft., with an "L" 48 by 33 ft. The roof is now being put on the mill and the contractors expect to have it ready to turn over to the company within a few weeks. The plant will contain 60 looms, which will be operated on men's wear worsteds and woolens. Electricity will be used for lighting and power purposes. They are now in the market for dressers, jack spoolers, skein spoolers and jack winders.

Pennsylvania, Philadelphia. John Gay's Sons, manufacturers of carpets at Howard and Norris Sts., have recently let the contract for the building of a second and third story addition, 53 by 128 ft., to their branch mill at the S. W. cor. of Trenton Ave. and Ann St. The cost is estimated at $28,000.

Pennsylvania, Philadelphia. George W. Lefferts & Co., who started up 2,300 spindles on worsted yarns in the Godshalk Mills, 23d and Hamilton Sts., during the fall of last year, have leased the building and equipment, consisting of 8 cards, 6 combs and 2,500 spindles, formerly operated by the Caledonia Worsted Mills, owned by Alexander Crow and located at 2212 Noble St. The two plants will be operated in conjunction, that at 23d and Hamilton being under the superintendency of Walter Marshall, while Mr. Lefferts will give their latest acquisition his personal attention. They will manufacture worsted yarns up to 32s for weaving and knitting, selling direct.

Pennsylvania, Philadelphia. Edward Weber, now at Mascher and Oxford Sts., where he is manufacturing cotton and wool ingrain carpets on 12 looms, is arranging for the removal of his plant to the Davenport Mills at the S. E. corner of Mascher and York Sts., where he has leased quarters from April 1.

Pennsylvania, Philadelphia. The Anchor Combing Works, of which Pearce & England are the proprietors, located at Hancock and Huntingdon Sts., is running to its full capacity. The owners have recently been compelled to double the machinery to enable them to fill orders. They are now operating 6 worsted cards and 5 combs.

Pennsylvania, Philadelphia. The Tracy Worsted Mills, located at 25th and Spruce Sts., which have been shut down for some time and offered for sale, have been leased by the American Woolen Company for the period of one year, or until they have completed a new factory in which they will spin worsted yarns.

Pennsylvania, Philadelphia. Drawings and specifications have been completed and bids are being asked for alterations and additions consisting of two additional stories to the plant of Ivins, Dietz & Metzger Company, at 7th and Lehigh Ave. The operations will consist of the erection of a fourth and fifth story with brick walls and slow burning wood interior construction, below which the work will consist of steel columns fireproofed with concrete and fireproof cement floors.

Pennsylvania, Philadelphia. E. H. Morris & Bro., Walnut Lane and Station St., Manayunk, manufacturers of carpet yarns, have increased their spinning equipment one third and are now operating 12 sets, 1836 spindles, all of which are running full time.

Pennsylvania, Philadelphia. Excavations are now being made for the building of the foundations for the new addition to the factory of John P. Holt on Main St., below Walnut Lane, Manayunk. The new building will be of reinforced concrete 160 by 68 feet, two stories high, which will probably be increased to four stories. They manufacture woolen and worsted yarns for carpets and rugs.

*Pennsylvania, Philadelphia. Wolstenholme & Clarke, Leverington Ave. and High St., Manayunk, report that ground will be broken for their new mill at 22nd and Allegheny Ave. on April 1. They are operating 19,500 spindles, 10 cards and 10 combs on worsted and merino yarns which they spin on the French system, and have in contemplation the installation, after they get into their new mill, of machinery for making yarns on the Bradford system as well as the French.

*Rhode Island, Harrisville. Construction work has been started on the new dye house for the Anchor Mills (American Woolen Co.).

Rhode Island, Providence. The Priscilla Worsted Mills have leased 6,000 square feet of additional floor space, and have placed orders for increased equipment. It is stated the plant will be practically doubled. 2,000 spindles on worsted yarns will be operated.

Rhode Island, Woonsocket. Another story will be added to the main building of the Scotia Worsted Mills, providing space for burling and sewing. Good progress is being made on the addition to the dye house. No new equipment will be added.

*Rhode Island, Woonsocket. The French Worsted Co. will put up a building, 200 by 250 ft., 4 stories high, which will include a combing plant and a storage house about 150 ft. square.

Wisconsin, Burlington. Arrangements are being made by the Burlington Blanket Co. for the installation of additional machinery for manufacturing horse blankets and other woolen goods.

Mills Starting Up.

Connecticut, Staffordville. It is reported that the Garland Woolen Co. will be started up soon, and that preparations are now being made to put buildings in condition for manufacturing.

Maine, South Berwick. The Batterymarch Woolen Co., which has been closed for a long time, is being rebuilt by William H. Carpenter, the owner, into a 2 1/2-story mill. Equipment to be installed consists of 1 set of cards, 2 mules, and 6 looms. Flannels will be manufactured early in the fall. The plant is operated by a gasoline engine.

*Massachusetts, Dalton. Charles F. Sawyer, of Dover, N. H., and C. H. Regan, of New York, have leased the Dalton Woolen Mill, and are preparing to start manufacturing at an early date. It is stated they will make fine woolen and worsted goods.

Massachusetts, Fitchburg. No date has been set for the opening of the old Cambridge Mills by the American Woolen Co., but manufacturing will be started early in the spring. A fine line of worsted dress goods will be the product. In the future the mill will be known as the Arden Mill. As reported previously, J. D. Armitage, of J. D. Armitage & Co., Lawrence, Mass., will be the agent, and F. A. Sterling will be superintendent and paymaster.

Pennsylvania, Philadelphia. The West End Woolen Mills Co., 64th and South Sts., which were incorporated a year or so ago with Jos. D. Murphy as president, and Edward V. Murphy, secretary and treasurer, and were run for several months, then shut down and reported as being out of business, have again been started up. The plant contains 13 sets and 225 looms which are run on flannels and cassimeres.

South Carolina, Greenville. Within a few weeks the McGee Mfg. Co. expects to resume manufacturing in full. They make woolen blankets and similar goods.

Mills Shutting Down.

Massachusetts, Quinapoxet. Stock is being run out of the machines of Cyrus G. Wood & Co. and mill will be shut down.

New Hampshire, Wilton. The Wilton Woolen Co. has shut down after running out all the stock in process.

SILK.

New Mills.

*Connecticut, Norwich. A manufacturing plant will be equipped on Falls Ave. by the Norwich Silk Co., recently reported incorporated in Hartford with capital stock of $10,000. H. D. Card of Putnam has been elected president, and George A. Smith, treasurer, superintendent, and buyer.

New Jersey, Paterson. George Grimshaw, late of the firm of Grimshaw Brothers, now out of business, is starting up a plant at the Grimshaw Mills for the manufacture of ribbons. Twelve looms will be the initial equipment.

Pennsylvania, Bowmanstown. A new concern has been organized under the style of the Bowman Silk Co. William Huffard of Lehighton will be president. They will build a 1-story mill, 50 by 100 feet, with separate boiler and engine room.

*Pennsylvania, Slatington. The proposed new silk mill will be known as W. H. Whitehead & Co.,

owned by W. H. Whitehead and Nathan Everett. The latter is interested in the firm of A. L. Storm & Co., operating plant at Nanticoke and Weissport. They will install 6,000 spindles by May 1 for throwing silk, giving employment to 80 hands. No contracts have been given out.

*Pennsylvania, Wilkesbarre. The Leon-Ferenbach Silk Co. has been incorporated with capital stock of $100,000, and on April 1 will begin construction work on a 2-story mill, 200 by 50 ft. They plan to begin the production of goods on 12,000 spindles about June 15. Silk throwing will be done. Henry Leon of Bradford is president, and Carl Ferenbach of Wilkesbarre is superintendent.

Enlargements and Improvements.

*Massachusetts, New Bedford. At a meeting of the stockholders of the Crescent Mfg. Co. it was voted to increase the capital stock from $25,000 to $65,000. A new building was recently purchased on Kempton St., to which the plant is to be removed. At present 54 looms are operated, but upon removal to the new plant 116 looms will be operated.

New Jersey, Paterson. Finklestein & Dimond have leased floor space in the Sowerbut Mills, Harrison and Paterson Sts., to be vacated by the American Silk Co. They contemplate adding a quantity of new machinery. This concern manufactures broad silks on 24 looms.

New Jersey, Paterson. The American Silk Co. will remove its plant to the new Reinhardt Mill on Clay St., where they have leased considerable more floor space than is occupied by them at present.

New Jersey, Rochelle Park. Owing to increased business the Rochelle Park Velvet Co., Gustave A. Klinge, proprietor, contemplate building an addition to their dye house and finishing plant. In addition to dyeing and finishing velvet ribbons and piece goods a general silk dyeing and finishing business is done.

New York, New York City. The Velvet Specialty Co. is operating plant at 420 East 156th St. A. Weyers is general manager. They are manufacturing velvets, ribbons and tie silks, and are in the market for more looms and auxiliary machinery as well as yarns. The product is sold direct.

Pennsylvania, Allentown. A small addition will be built to the plant of D. G. Dery on Front St.

Pennsylvania, Philadelphia. In order to secure enlarged manufacturing space the Concordia Silk Mills will remove from Second and Norris Sts. to the Oldham Mills.

Pennsylvania, Philadelphia. It is reported that the Concordia Silk Mill will move from Second and Norris Sts. to the Oldham Mills structure to secure enlarged manufacturing space.

Rhode Island, Central Falls. A new building is being erected on Mill St. for the Leader Weaving Co. The new structure will be of modern mill construction, two stories high, 107 by 135 feet. It will be equipped with 250 looms, giving employment to 125 more hands. Herbert C. White is president. C. J. Fillmore is treasurer. They manufacture silk fabrics.

MISCELLANEOUS.

*Connecticut, Unionville. Charles W. House & Sons, whose plant was damaged to the extent of $50,000 to $75,000 by fire, recently, will commence rebuilding at once. They manufacture felt goods.

*Massachusetts, East Brookfield. It is officially announced that the branch of the Rhode Island Dyeing & Finishing Corporation of Woonsocket, R. I., which has been operated at this place, will be discontinued.

Massachusetts, Lawrence. The capacity of the Lawrence Dye Works Co. will be increased 15 per cent. by the addition of new and improved machinery. The plant is being operated day and night.

Massachusetts, Milford. The town of Milford has decided to sell the strip of land adjoining the plant of William Lapworth & Sons Co.'s elastic fabric plant, and the N. Y., N. H. & Hartford R. R. Co.'s property to Mr. Lapworth, on condition that if it is not used for manufacturing purposes within two years the property shall revert to the town. The Lapworth Co. wishes to build an addition on the land.

*Massachusetts, Millbury. The Fish, Carter Co., of Worcester, has been awarded contract for two new buildings for the West End Thread Co. There will be a machine shop, 30 by 40 feet, 1 story high and basement; bleachery, 30 by 40 feet, with wing, 30 by 30 feet, 1 story high. Construction work will begin April 1.

*Massachusetts, North Brookfield. New machinery is being received at the Oxford Linen Mills. The company has bought water rights in this vicinity and is planning to build a dam and to develop water power.

Massachusetts, Wilkinsonville. About March 15, the Chester Woolen Co., manufacturers of shoddy and wadding, operating a plant at 202 North 5th St. and 443 Metropolitan Ave., Brooklyn, will begin manufacturing at this place with 6 sets of cards. J. Blumenthal attends to the buying.

*Massachusetts, Williamstown. The J. S. Boyd Co., composed of George A. MacDonald, R. H. A. Hewatt and John S. Boyd, will engage in the manufacture of corduroys in the factory building known as the old Bleachery and located at Williamstown. Mr. MacDonald bought this property some time ago. He is treasurer of the North Adams Trust Co. Mr. Hewatt is a member of the firm of Strong & Hewatt, North Adams, manufacturers of worsted goods. Mr. Boyd is the practical man, having had experience in manufacturing corduroys. He is at present in Europe purchasing machinery. It will probably be several months before the concern is ready to start up.

*Massachusetts, Worcester. Enlargement of the Wachuset Thread Co.'s plant is in the form of an extra story being built on their building. Very little extra machinery will be required, as the addition is mainly to give more room for present

equipment. What additional equipment will be added has been ordered.

*New Jersey, Paterson. Construction work was started Feb. 1 on the new mill for Prescott & Waywell and if the present schedule is followed the building will be ready for manufacturing by May 1. The structure will be two stories high with basement, and will have 12,000 feet of floor space. They do warping on commission for textile mills in all parts of the country.

New York, Newfane. A new boiler is being installed in the power plant of the Lockport Felt Co.

North Carolina, Charlotte. The Cotton Fiber Co. has been incorporated with capital stock of $125,000 for the manufacture of cotton waste from textile mills. R. K. Blair, C. O. Brown, and J. R. McDonald, all of this city, are the incorporators.

Pennsylvania, Philadelphia. Another story is being built on the mill of the Krout & Fite Mfg. Co., Alleghany Ave. and Emerald St., to give more room. They are also enlarging the boiler house to provide space for a new 150 h. p. boiler. These improvements are expected to be completed by July 1.

Pennsylvania, Philadelphia. The Rajah Mfg. Co. is installing 10 broad looms, making a total of 40 looms. This company was incorporated in January and manufactures Turkish towels and Terry cloth.

*Pennsylvania, Philadelphia. The American Lace Co., recently reported by us as about to start up with an office at 218 South 4th St., and a factory on Lawrence St., above Locust, have applied for a charter with a capital of $10,000 and L. H. Cahan, M. L. Landman and Isador Oppenheimer as the incorporators. The officers of the company will be L. H. Cahan, treasurer ; M. L. Landman, manager and buyer, and Isador Oppenheimer, supt. The company will manufacture laces, edging, etc., for underwear manufacturers, and will operate 10 looms, one of which is now being operated in conjunction with one spooler and one warper. They will sell direct. Electricity is the motive power.

Pennsylvania, Philadelphia. Miller & Harrison have leased the buildings formerly occupied by the late Wissahickon Waste Co., at Cresson and Vassar Sts., Wissahickon, in which they are installing machinery for the rain-proofing and finishing of textile fabrics under a new system. They will handle cottons, silks, velvets and woolen goods.

Pennsylvania, Philadelphia. Upham Bros. Co., Inc., manufacturers of sewing threads and mercerized and glazed cottons, now at Hancock and Oxford Sts., are arranging for the removal of their plant to Germantown, where they have secured a large building at Lena and Armat Sts. The company reports that they will double their machinery equipment in all departments and also install machinery for a dyeing department. The entire plant will be run by electricity and the company is asking for bids on all classes of machinery for a plant of this kind, as well as motors, etc., for individual driving purposes.

Pennsylvania, Philadelphia. Henry Dickel & Son, 2012-2024 E. Arizona St., who have been manufacturing ingrain carpets on 50 looms, report that they have reduced their weaving equipment to 35 looms and placed an order for 250 braiders on which they will manufacture plain and mercerized braids especially adapted for the knitting trade. The first delivery of these machines is expected almost every day.

Pennsylvania, Philadelphia. John Bings, Hancock St. and Lehigh Ave., has re-equipped his plant with 300 braiders and is now making braids and laces only, buying 20/2 to 30/2 cotton yarns and selling direct.

Pennsylvania, Philadelphia. The Industrial Mills Co., located at Jasper and Huntingdon Sts., manufacturers of silk, cotton and mercerized narrow fabrics, plain and fancy spool tapes, etc., report that their increasing business has compelled them to increase their looms to 50, all of which are running full time and with prospects ahead for a good business. They sell direct.

Pennsylvania, Philadelphia. Joseph R. Foster & Sons, Second and Clearfield Sts., finishers and dyers, are putting in a 250 h. p. Berry boiler as an addition to the three boilers of this make which they have already in use in their plant. This will give them a capacity of 1000 horsepower.

Pennsylvania, Philadelphia. Frederick Lord, Leverington Ave. and Nixon St., Manayunk, manufacturer of carpet and waste yarns and cotton and woolen waste on 9 sets, 1440 mule spindles, has installed machinery for dyeing his product.

Pennsylvania, Philadelphia. The Niagara Thread Co. are increasing their plant in all its departments. New machinery has been installed and they are waiting for other machines which have been ordered.

Pennsylvania, Philadelphia. Harry Crowther, 2042 Palethorp St., washer and manufacturer of silk wiping cloths, with Herbert Morrell as superintendent, is negotiating for land in the Kensington district on which to erect a one-story brick building with a floor surface of about 3,700 square feet. The plant, when erected, will be fitted up with the latest improved machinery for this purpose.

Pennsylvania, Philadelphia. Crawshaw Wolfenden, located at 2316 North 2d St., where he has been dealing in cotton and woolen waste, all kinds of yarns and textile machinery, has leased the building at Bodine and York Sts. into which he is now removing. It is his intention to put in coning and winding machinery and is looking up machinery for this class of work.

*Rhode Island, Auburn. No particulars of the addition to be erected for the A. A. A. Spooling & Winding Co. have been given out. This company manufactures mercerized crochet cotton and darning cotton on spools and cards. They buy yarns.

Rhode Island, Pawtucket. It is reported that the Pawtucket Dyeing & Bleaching Co. will erect a new building near the company's present plant.

Rhode Island, Pawtucket. The Berry Spring

Bleachery has started operations. They do bleaching of all kinds of yarns, cops, and skeins, also of knit goods in the piece. George A. Lumb is treasurer and buyer, and John E. Bland is manager.

*Rhode Island, Westerly. The Narrow Fabric Co. has been incorporated with capital stock of $250,000, $100,000 preferred, and the remainder common. James A. Welch is president, William Clark, vice president, Charles A. Sherman, treasurer, Frank A. Sherman, secretary, and M. O. Steere is general manager. They will erect a factory building on Beech St. on a site comprising 10 acres of land. Work on the buildings will be commenced soon, and looms have already been ordered. It is expected that the product will be on the market by July 1.

*Rhode Island, Woonsocket. The new picking and carding plant being started in the building formerly occupied by the Montrose Woolen Co. is owned by the estate of J. P. & E. K. Ray. They will manufacture carded cotton, the product to be taken by the Putnam Mfg. Co. of Putnam, Conn.

FAILURES AND SUSPENSIONS.

New Jersey, Hohokus. Frank P. McDermott of Jersey City has been appointed receiver for the Brookdale Bleachery. The liabilities are $115,900. A schedule of the assets is not given. On February 3 the plant closed down, but at that time it had on hand a large consignment of cloth belonging to the Western Shade Cloth Co. of Chicago. On February 23 the Western Shade Cloth Co. made a contract to take possession of the plant and finish the work on hand. Bids for the property will be received by Mr. McDermott at 259 Washington St., Jersey City, N. J.

Pennsylvania, Bath. The Bath Silk Manufacturing Co. have been adjudged involuntary bankrupts. The company had a capital of $25,000; L. E. Saft, president, and William G. Gordon, treasurer and superintendent, and operated 75 broad looms and 3,520 silk spindles on yarns and broad silks.

Pennsylvania, Chester. A notice has recently been issued that John J. McCloskey has been appointed receiver of the Lincoln Manufacturing Co., and requesting all persons indebted to this company to make payment, and all claims against the company be presented, to the receiver.

FIRES.

Connecticut, Unionville. Damage to the extent of $50,000 to $75,000 was caused by fire in the felt mill of Charles W. House & Sons. The loss is fully covered by insurance.

New York, Cohoes. The Page Manufactory, Jonas Ravenscroft, proprietor, has been severely damaged by fire. The loss is estimated to be $7,500. They manufactured cotton bats and shoddies.

North Carolina, Smithfield. The plant of the Holt Cotton Co., manufacturers of carded cotton, has been destroyed by fire, and it is reported will not be started up again. The owners of the concern are now, it is said, engaged in the buying and selling of cotton.

FACTS AND GOSSIP.

North Carolina, Rosemary. It is reported that the Transylvania Co., which was incorporated with capital stock of $50,000 by E. E. Bowen and S. L. Carmen for the manufacture of fancy shirtings and towels, has been dissolved.

North Carolina, Zirconia. The Green River Mfg. Co. has begun manufacturing with 7,000 spindles, producing fine combed yarns.

Pennsylvania, Allentown. It is reported that Kaltenbach & Stephens contemplate the erection of a large mill in this city, which will give employment to from 600 to 700 hands in addition to the present employes. They manufacture silk ribbons.

Pennsylvania, Chester. The Chester Lace Mills Co. has been incorporated with capital stock of $400,000. J. W. Smith, formerly general manager of T. I. Birkin & Co., manufacturers of lace curtains, and curtain nets is president and treasurer of the Chester Co. The new company will take over the plant and business of T. I. Birkin & Co. During the stock taking and minor alterations the mills are closed, but manufacturing will be resumed on March 8.

Pennsylvania, Clifton Heights. It is reported that the Colonial Manufacturing Co., now operating 30 looms on Turkish towels, are negotiating for a building in Glen Riddle to which to remove their plant and increase their equipment to 200 looms. They are very busy.

Pennsylvania, Lebanon. Reported consolidation of the Nolde & Horst Co. of Reading, with a branch plant which was stated to be located in this city refers to the removal of the few machines which were operated at this place in a rented room.

Pennsylvania, Lewisville. The Spring Lawn Mfg. Co., whose plant was burned down some time ago, report that they will not rebuild.

Pennsylvania, Philadelphia. The Binder & Morrell Co. has been incorporated by Jacob Binder, Richard B. and Richard N. Morrell. The new corporation takes over the business of Binder & Ellis, manufacturers of upholstery and curtains at Allieghany Ave. and C St.

Pennsylvania, Philadelphia. Oehrle Bros. & Co., whose plant at 425 North Third St. was completely destroyed by fire some months ago, have equipped the building at 247 North Third St. with machinery for the manufacture of upholstery trimming, etc., at which address they are now conducting their operations. They report that as soon as their former building is repaired they will remove to their old address. They expect to be back in their old quarters in about three months.

Pennsylvania, Philadelphia. Rosenheim Bros. Co. have been granted permission to change their

firm name to the Arbeco Mills. They manufacture upholstery fabrics.

Pennsylvania, Philadelphia. A charter has been asked for D. W. C. Ellis & Co., incorporated, by Nadine Berens Ellis, William H. C. Ellis and Nadine Ellis, all of the firm of D. W. C. Ellis & Co., under which title the concern will operate in the future. The company has a capital of $10,000 and will have for its officers N. B. Ellis, president; N. Ellis, secretary, and W. H. Ellis, treasurer and superintendent. They are manufacturers of dress goods, the plant being located in the Ripka Mills in Manayunk, where they are operating 242 looms by water and selling the production direct through their office at 242 Chestnut St.

Pennsylvania, Philadelphia. The Excelsior Winding Co., owned and operated by G. Josephs as branch of his plant at 526 Jefferson St. in this city and located at 49 Elizabeth St., New York City, has been sold out to other parties who have removed the machinery to new quarters at 64 Grand St.

Pennsylvania, Philadelphia. Articles of incorporation have been filed by John I. Donovan, Thomas Kelley and John T. Kirkbride for C. Moore & Co., Inc. This concern is now in business at 5th and Market Sts., where they are manufacturing harness twines, linen yarns, etc.

Pennsylvania, Philadelphia. Thomas Henry, Jr., yarn manufacturer, has bought a plant at the corner of Seventh and Huntington Sts. for about $65,000. He expects to occupy it about June. It is rumored that extensive alterations will be made.

Pennsylvania, Philadelphia. The Hancock Worsted Mills has recently been started up by William Brodie at the N. E. corner of Lehigh Ave. and Mutter Sts., where they are manufacturing men's wear and dress goods, operating 20 broad looms, under the superintendency of James Stocks, formerly with the Lehigh Worsted Co.

Pennsylvania, Spring City. The building formerly occupied by W. M. Urner & Co. for the manufacture of hosiery, may be equipped as a silk factory.

Pennsylvania, Walnutport. A new silk plant will be started in the Bowman Building. Looms are expected to arrive within a few days.

*Rhode Island, Lincoln. The Independent Cotton Mfg. Co. proposes to erect a mill in this vicinity and has asked exemption from taxation for a period of ten years. The company guarantees to erect within two years a 500 loom plant if exemption is granted.

Rhode Island Providence. A partnership has been formed by E. B. Carleton of E. B. Carleton & Co., wool dealers, Boston, and Charles Robinson, formerly connected with the Earnscliffe Worsted Mills, to take over and operate the C. L. Blanding Mfg. Co.'s plant. They expect to conduct the plant with the old equipment for the present. Details have not been gone into as it will be necessary to straighten out the affairs of Mr. Blanding before the plant can be turned over to Messrs. Carleton & Robinson.

Rhode Island, Providence. The Hope Dyeing & Finishing Works have been incorporated with capital stock of $20,000 by James Freidricks, Ernest Streeter and George M. Baker.

Rhode Island, Providence. It is reported that a new worsted spinning company is being organized in this vicinity and will locate a plant in Providence.

Rhode Island, Valley Falls. The report that N. W. Tilton would shortly acquire the property of the Naushon Co. is denied by the treasurer, G. C. Hinckley.

Rhode Island, Washington. The Livingston Worsted Co. has rented a floor in the Robinson Block, Olneyville, in which sewing will be done.

South Carolina, Anderson. The Cox Mfg. Co. may equip a weaving department. At present they operate 25,000 ring spindles on cotton yarns.

South Carolina, Greenville. No decision has been made by Lewis W. Parker and associates regarding plans for the future of the Huguenot Mills, recently purchased by them as reported. Mr. Parker advises that he does not know whether they will operate the plant or not.

South Carolina, Greer. It is probable that a new 10,000-spindle cotton mill will shortly be erected here. Lewis W. Parker of Greenville, S. C., and F. J. Inglesby, secretary and treasurer of the Apalache Mills at Arlington, S. C., are the promoters. It is proposed to organize a $200,000 company.

*South Carolina, Woodruff. The W. S. Gray Cotton Mill, which is installing machinery preparatory to starting up in the near future, has awarded the contract for the "turbo-humidifying" system to the G. M. Parks Co., Fitchburg, Mass.

Tennessee, Memphis. Charter has been granted the National Cotton Felt Co., with capital stock of $25,000. W. D. Roberts, W. S. Roberts, A. F. Fiads and Thomas Pickens are the incorporators. They have leased building for manufacturing cotton comforts and cotton batting and will engage F. A. Cheney of Bellefontaine, Ohio, as superintendent. Mr. Pickens will be general manager and treasurer.

Texas, Dallas. It is reported that the machinery equipment of the New Albany Woolen Mills Co., which has not been in operation for some years, has been purchased by Joseph E. Wiley of this place, who will remove it to this city.

*Texas, Marble Falls. As soon as the dam across the Colorado River is finished, the Granite Mfg. Co. states they will most likely arrange for the erection of a cotton mill. At various times in the past it has been rumored that a cotton mill was to be located here.

Utah, Ogden. C. A. Shepard of Pendleton, Oregon, is in communication with the Chamber of Commerce for the purpose of discussing the possibility of establishing a woolen mill in this city.

Virginia, Suffolk. A. H. and W. E. Cobb, who have been dyeing and finishing their goods, have shut down their dye house and are now having their product dyed by other parties, continuing finishing in their own plant.

Personals.

Chas. L. Staples, superintendent of the Wilton Woolen Company, Wilton, N. H., has accepted the position as superintendent of the Oakland Mfg. Company, Reisterstown, Md.

Ben Oldfield has accepted a position as overseer of finishing at the Central Worsted Company, Central Village, Conn., succeeding C. D. Risley.

Edward Harrison, overseer of spinning at the Brickner Woolen Mills Company, Sheboygan Falls, Wis., has resigned and accepted a similar position at the Racine Woolen Mills, Racine, Wis.

Frank Towle, overseer of carding at the Boston Mfg. Company, Waltham, Mass., for the past two years, has severed his connection with that company.

Morris Gledhill, superintendent of the Oakland Mfg. Company, Reisterstown, Md., has resigned to accept a position as superintendent of the Marston Worsted Mills, Skowhegan, Me.

David Campbell was elected president at the annual meeting of the Pontoosuc Woolen Mfg. Company, held at Pittsfield, Mass., recently. Henry A. Francis was chosen treasurer and general manager. David Campbell, Henry A. Francis and Wm. E. Cushing were chosen directors. Reginald Montfort Ames, the company's accountant and bookkeeper, will be chosen assistant treasurer at a later meeting.

Adolph Ziegler has accepted the position as overseer of twisting and winding at the Saranac Mills, American Woolen Company, Blackstone, Mass. He comes from Rockville, Conn.

John F. Jones has accepted a position as overseer of spinning at the Marble City Mills, Sylacauga, Ala.

E. S. Trammell has succeeded J. P. Hunt as superintendent of the Elk Mountain Mills, Lafayette, Tenn. Mr. Hunt has accepted a position as secretary and manager of the Trenton Cotton Mills, Trenton, Tenn.

Oliver L. Grice has resigned as overseer of spinning at the Belmont Mills of Shelby, N. C. J. B. Smith succeeds him.

J. G. Saunders has accepted a position as overseer of carding and spinning at the Brookford Mills, Hickory, N. C. He comes from Columbus, Ga.

W. S. Porter has accepted a position as overseer of weaving at the Brookford Mills, Hickory, N. C. He was formerly employed at Aragon, Ga.

Z. T. McKinney, superintendent of the Textile Mills Corporation, Wesson, Miss., has resigned to accept a similar position in a Georgia mill.

Kern Goodwin, superintendent of the Sycamore Cotton Mills, Sycamore, Ala., has severed his connection with that company.

J. H. Huff has been appointed overseer of spinning at the Gaffney Mfg. Company, Gaffney, S. C.

D. W. Andrews has been appointed overseer of carding at the Orangeburg Cotton Mills, Orangeburg, S. C.

C. C. Randleman, superintendent of the Pilot Mountain Cotton Mills, Pilot Mountain, N. C., has resigned.

Thomas Kenny, overseer of finishing at the Oneko Mills, New Bedford, Mass., has severed his connection with that company.

John McGill, overseer of finishing at the Madison Woolen Company, Madison, Me., for the past two years, has severed his connection with that company.

Jos. D. Price has accepted the position as overseer of dyeing for Edward T. Steel & Company, Keystone Woolen Mills, Bristol, Pa. Mr. Price was formerly employed at the River Spinning Company, Woonsocket, R. I., under superintendent, Wm. A. Tucker, who has recently accepted the position as superintendent of the Edward T. Steel & Company and who thought so well of Mr. Price's service that he engaged him soon after taking up his new duties at the mill.

J. C. Foster has accepted the position as overseer of spinning at the Woodruff Cotton Mills, Woodruff, S. C., succeeding J. H. Henderson.

R. A. Whatley, overseer of weaving at the Fulton Bag & Cotton Mills, Atlanta, Ga., has resigned.

J. T. Reeves, overseer of carding at the Adelaide Mills, Anniston, Ala., has resigned and accepted a similar position with the Sycamore Cotton Mills, Sycamore, Ala.

J. A. Thompson has been appointed superintendent of the Sycamore Cotton Mills, Sycamore, Ala. He was formerly superintendent of the Adalaide Mills, Anniston, Ala.

Van G. Peabody, overseer of finishing at the Tilton Mills, Tilton, N. H., has severed his connection with that company.

A. E. Kay, overseer of ring spinning, twisting, winding and warping at the Brighton Mills, Passaic, N. J., has severed his connection with that company.

L. N. Harris has taken charge of spinning at the Greenwood Cotton Mills, Greenwood, S. C.

Frank J. Mouer, for several years employed at the Cone Export & Commission Company, has accepted a position at the Textile Mills Corporation, Wesson, Miss.

Z. T. McKinney, superintendent of the Textile Mills Corporation, Wesson, Miss., has severed his connection with that company.

Samuel R. Campbell has been appointed president and manager; John P. Campbell, vice-president and charge of bleachery; Edward N. Coughlin, assistant treasurer, and Timothy Mooney, general superintendent at a meeting held by the directors of the New York Mills, New York Mills, N. Y.

Walter D. West, superintendent of the Knoxville Woolen Mills, Knoxville, Tenn., has severed his connection with that company.

J. W. Sherry, late of the Aragon Mills, Aragon, Ga., has accepted the position as superintendent of the New York Mills, New York Mills, N. Y.

Edward W. Wiessner, superintendent of the Huntington Mfg. Company, Huntington, Mass., has severed his connection with that company.

John C. Weeks, overseer of carding at the Wilton Woolen Company, Wilton, N. H., has accepted a similar position with the Camden Woolen Company, Camden, Me.

Howard Dudley, overseer of dyeing at the May Worsted Mills, Rockdale, Pa., has severed his connection with that company and is succeeded by James Townson, who formerly held this position.

Archie Nichols, in charge of drawing-in department at the Peace Dale Mfg. Company, Peace Dale, R. I., has resigned and is succeeded by Sheffield Wilbur.

Thomas Cavanaugh has been appointed superintendent of the United States Cotton Company, Central Falls, R. I.

Harry D. Kimball has accepted the position as superintendent of the I. E. Palmer Company, Middletown, Conn. He was formerly employed at the Consolidated Cotton Duck Company, Baltimore, Md.

John G. Hanrahan has been engaged as boss weaver at the Garland Mills, Staffordville, Conn. He comes from West Swanzy, N. H.

Frank A. Brown has been appointed overseer of finishing at the Garland Mills, Staffordville, Conn.

Chas. M. Smith has been appointed overseer of spinning at the Garland Mills, Staffordville, Conn.

Wm. Joyce has been appointed superintendent of the new woolen mill which is to start at Allendale, R. I. He was formerly in charge of one of the departments at the Riverside Mills, Providence, R. I.

Thomas Ellis has accepted a position as overseer of spinning and twisting at the No. 4 Mill of the Geo. H. Gilbert Mfg. Company, Gilbertville, Mass. He comes from Bloomfield, N. J.

Oliver D. Drew, for the past six years general superintendent of the Dwight Mfg. Company, Chicopee, Mass., has been appointed superintendent of the Interlaken Mills, R. I., with mills at Harris and Arkwright, succeeding Richard Andrews, recently deceased. Mr. Drew is well known in mill circles, having been in the cotton mill business since fifteen years of age, and for the past twenty years holding responsible positions with some of the leading New England mills, and by reason of his large and varied experience, comes to his new place well qualified to fill such a position of trust. The Interlaken Mills manufacture a fine grade of cloth for the covers of books and own their own dye and finishing works.

Chas. M. Taylor, overseer of dyeing and finishing at the Brogon Mills, Anderson, S. C., has resigned and accepted a similar position in a mill in Connecticut.

C. D. Risley, overseer of finishing at the Central Worsted Company, Central Village, Conn., has resigned.

Alex. H. Wilson, designer at the Stanley Woolen Company, Uxbridge, Mass., for the past year, has severed his connection with that company and accepted a similar position with the Geo. H. Gilbert Mfg. Company, Gilbertville, Mass. He is succeeded by Edward Elsner.

Henry Engleshkirchen has accepted the position as superintendent of the Columbiaville Woolen Mills, Columbiaville, Mich., succeeding H. D. Burnell, who resigned.

P. C. Wilson has been appointed superintendent of the Slater Mfg. Company, and the old Southern Cotton Mills of Bessemer City, N. C. He was formerly employed at the Hardwick & Hoskins Mill, Charlotte, N. C.

R. P. Kerley has been appointed assistant superintendent of the Erwin Cotton Mills, West Durham, N. C.

W. T. Bain has accepted the position as overseer of weaving at the Shelby Cotton Mills, Shelby, N. C., succeeding J. H. Hunt.

W. H. Turner, Jr., overseer of spinning at the Tallassee Falls Mfg. Company, Tallassee, Ala., has resigned and accepted a position as superintendent of the Hogansville Mfg. Company, Hogansville, Ga. This mill belongs to the Consolidated Cotton Duck Company and he succeeds David Kohn.

R. Medlin has accepted the position as overseer of weaving at the Liberty Cotton Mills, Liberty, S. C.

F. L. Allen, formerly superintendent of the mills at Jackson, Ga., and McComb, Miss., has taken a position as superintendent of the Maginnis Mills, New Orleans, La.

J. C. Mountjoy, formerly overseer of weaving at the Gainesville Cotton Mills, Gainesville, Ga., has resigned and accepted a similar position at the Union Cotton Mills, Union, S. C.

J. G. Farr, overseer of spinning at the Walton Mills, Monroe, Ga., has resigned and accepted a similar position at the Covington Mills, Covington, Ga.

J. G. Greenlee, overseer of twisting at the Monroe Cotton Mills, Monroe, N. C., has resigned and accepted a position elsewhere.

J. P. Scott, engineer and mechanic at the Elizabeth City Mills, has resigned and accepted a similar position at the Kingston Cotton Mills, Kingston, N. C.

T. S. Haskell, overseer of carding at Eastman, Ga., has accepted a position as assistant superintendent for the Metropolitan Life Insurance Company, of Augusta, Ga.

John L. Robinson, for the past two years assistant superintendent at Bessemer City, N. C., has

resigned to accept a similar position at the Lock Mill, Concord, N. C.

J. H. Lashley, overseer of weaving at the Nokomis Mill, Lexington, N. C., has resigned and returned to his old position at the Proximity Mills, Greensboro, N. C.

John Winn, overseer of dyeing at the Proximity Mills, Greensboro, N. C., has resigned and accepted a similar position at Huntsville, Ala.

H. R. Gillies, overseer of the finishing department at the Esmond Mills, Esmond, R. I., has severed his connection with that company to accept a similar position at Utica, N. Y.

H. Richardson has accepted a position as overseer of carding at the Saratoga Victory Mfg. Company, Victory Mills, N. Y.

Geo. McKenzie has taken charge of cotton dyeing at the Brainerd & Armstrong Company, New London, Conn. He was formerly employed at Thorndike, Mass.

O. P. Rennie, overseer of cotton carding at the Harder Mfg. Company, Valatie, N. Y., for the past two years, has severed his connection with that company.

H. G. Tietze has accepted the position as overseer of spinning at the Oregon City Mfg. Company, Oregon City, Ore. Mr. Tietze formerly held this position for a number of years. He comes from Racine, Wis.

Edward A. Mansfield, agent of the Hecla Mills, American Woolen Company, Uxbridge, Mass., met with a severe accident by falling on the ice, breaking his left leg above the ankle, which will confine him to his home for some little time.

J. Albert Clapp, who has been superintendent of the Baltic Mills, Enfield, N. H., has resigned. It is reported he has taken a position at Providence, R. I.

Harry W Scatchard has accepted a position as second hand in the spinning department at the Northern Ohio Blanket Mills, Cleveland, O. He comes from Lawrence, Mass.

T. W. Biddles, overseer of finishing at the Peace Dale Mfg. Company, Peace Dale, R. I., has resigned.

John Hitchman, designer at the Hartford Carpet Company, Thompsonville, Conn., has resigned and accepted a position with the Smith Carpet Company of Yonkers, N. Y.

James Sherman has accepted the position as overseer of finishing at the Oneko Woolen Mills, New Bedford, Mass. He was formerly employed in a similar position at the Taconic Mill, Pittsfield, Mass

F. A. French, overseer of weaving at the Clincoln Cotton Mills, Evansville, Ind., has severed his connection with that company.

J. Potterfield, night overseer of carding at the Southern Cotton Mills, Athens, Ga., has accepted a similar position with the Star Thread Mills, same city.

G. L. Smith has been appointed overseer of weaving at the Gainesville Cotton Mills, Gainesville, Ga.

John Howard has accepted a position as overseer of weaving at the Uxbridge Worsted Company, Uxbridge, Mass., on the night shift.

J. A. Nilson has accepted the position as master mechanic at the Ashland Cotton Company, Jewett City, Conn. He comes from the Otis Company, Ware, Mass.

Thomas Bessy has been appointed dry finisher at the Madison Woolen Company, Madison, Me.

Richard O'Donnell, overseer of dyeing at the Russell Mfg. Company, Pittsfield, Mass., has resigned. He is succeeded by Edward Magner, who has been assistant dyer for the past few months.

Thure Rydholm has accepted the position as assistant pay master with the Hockanum Company, Rockville, Conn. He formerly held a similar position at the Shetucket Company, Norwich, Conn.

John H. Jones, designer at the Puritan Mills, American Woolen Company, Plymouth, Mass., has been appointed superintendent of the Earnscliffe Mills, Providence, R. I., succeeding Chas. A. Robinson.

W. S. Griffin, overseer of spinning at the Laurel Mills, Charlotte, N C., has accepted a similar position with the Magnolia Mills, same city.

D. R. George has accepted a position as chief engineer and master mechanic at the Gainesville Cotton Mills, Gainesville, Ga.

B. A. Robertson has accepted a position as overseer of carding at the Dresden Cotton Mills, Lumberton, N. C., succeeding J. L. Phillips.

J. H. Meeks has accepted the position as overseer of dyeing and finishing at the Brogon Mills, Anderson, S. C.

J. F. Shinn, superintendent of the Norwood Cotton Mills, will also have the general supervision of the Slater Mfg. Company, Bessemer City, N. C.

W. W. Adcock has resigned his position as night superintendent of the Everett Cotton Mills, Monroe, N. C. He has accepted a position as carder and spinner of the Great Falls Mfg. Company, Rockingham, N. C.

D. J. Bolton has accepted a position as superintendent of the No. 2 Mill of the Marlboro Cotton Mills Company, McColl, S. C.

E. J. Lefort has accepted the position as overseer of dyeing at the Proximity Mfg. Company, Greensboro, N. C., succeeding John Wayne.

John J. Sheehan has accepted a position as overseer of carding at the Ellis Mill, Monson, Mass. He was formerly employed at the Pine Tree Worsted Company, Danielson, Conn.

J. J. Barrett, overseer of the dyeing department at the Hadley Mills, South Hadley Falls, Mass., has severed his connection with that company.

A. Tait Hope has been appointed superintendent of the Somerset Woolen Company, Monson, Mass. He comes from Potter Hill, R. I.

Leonard Maine has accepted a position as overseer of spinning at the H. T. Murdock & Company, Proctorsville, Vt., succeeding S. P. Servais.

Henry W. Chapman has accepted a position as overseer of weaving at the Knoxville Woolen Mills, Knoxville, Tenn. He was formerly employed at the Aetna Mills, Watertown, Mass.

Wm. M. Barber, overseer of weaving at the Aldrich Mfg. Company, Moosup, Conn., for the past three years, has severed his connection with that company

Thomas Dugan has accepted a position as overseer of spinning with John K. Stewart & Sons, Amsterdam, N. Y. He comes from Biddeford, Me.

Geo. Dickey has accepted a position as overseer of weaving at the Farwell Mills, Lisbon Me. He comes from Williamstown Station, Mass.

Chas. E. Hartley has been appointed superintendent of the Heywood Narrow Fabric Company, Fall River, Mass He comes from New Bedford, Mass.

S. P. Davis has accepted a position as master mechanic at the Saratoga Victory Mfg. Company, Victory Mills, N. Y. He comes from New Bedford, Mass.

A. Lees Cochrane has accepted the position as superintendent of the Hewson Woolen Mills, Ltd. Amsherst, Nova Scotia. He was formerly employed at the Knoxville Woolen Mills, Knoxville, Tenn.

Frederick Berkenshaw, overseer of finishing at the Pontoosuc Woolen Mfg. Company, Pittsfield, Mass., has resigned to accept a similar position at the Aetna Mills, of Watertown, Mass.

Willard Abbott Currier, assistant treasurer of the American Woolen Company, and Gertrude Augusta, daughter of Mr. and Mrs. Frank D. Huntington, were married at Newburyport, Mass., Monday, February 15. Among the gifts was a check for a thousand dollars from President Wood of the American Woolen Company; a French mirror in solid bronze framed, from Treasurer Dwelly and a solid gold French clock from sixty employes of the Boston office of the American Woolen Company. The gift of the groom to the bride was a platinum necklace with diamond pendant.

Wm. Broadhead, founder of the Broadhead Worsted Mills, Jamestown, N. Y., celebrated his 90th birthday, recently. He is now enjoying the country in California.

John Casey has accepted a position at the Homer Woolen Mills, Homer, N. Y. He was formerly employed at Seneca Falls, N. Y.

C. B. Atkins has accepted a position as overseer of knitting at the Atlas Underwear Company, Piqua, O.

John Parkhurst, overseer of dressing at the Yantic Woolen Company, Yantic, Conn., has severed his connection with that company after forty-three years of service.

Frank R. Bean has accepted the position as overseer of finishing at the Vassalboro Mills, North Vassalboro, Me. He comes from Wilton, N. H.

John Riley has accepted the position as overseer of ring and mule spinning at the Lawton Spinning Company, Woonsocket, R. I. He was formerly employed at Magog, Quebec, Canada.

Wm. Hinchliffe has been appointed superintendent from yarn to case of the Peace Dale Mfg. Company, Peace Dale, R. I.

Wm. G. Duce, master mechanic for the past nineteen years at the Ashland Cotton Company, Jewett City, Conn., has resigned.

S. C. Kinney, overseer of carding at Aragon, Ga., has accepted a position as overseer of carding and spinning at Winder, Ga

M. T. Grimes, master mechanic and chief engineer at the Elm City Mills, La Grange, Ga., has resigned to accept a position as superintendent of the Wehadkee Yarn Mills, Rock Mills, Ala.

L. P. Darnell has accepted a position as overseer of spinning at the Ottray Mills, Union, S. C.

E. T. Barnes of Union, S. C., has taken a position in charge of spinning at both mills at Lockhart, S. C.

J. C. Hooker, night overseer of spinning at the Icemorlee Mills, Monroe, N. C., has resigned and taken a position as night spinner at the Everett Mills.

John E. Tobin, second hand in the weaving department at the Queen City Cotton Mill Company, Burlington, Vt., has severed his connection with that company.

Geo. D. Curtis has accepted the position as second hand in the carding department at the Chicopee Mfg. Company, Chicopee Falls, Mass. He comes from Natick, R. I.

Edward F. Maher, overseer of carding at the No. 4 Mill of the Thorndike Company, West Warren, Mass., has been promoted to the position as superintendent of that mill, succeeding Thomas E. Ainley.

David Welch has accepted a position as overseer of finishing at the Peace Dale Mfg. Company, Peace Dale, R. I. He comes from Waterloo, N. Y.

Emmett Ainley has accepted a position as designer at the Darling Woolen Mills Company, Holliston, Mass. He was formerly designer at the National & Providence Worsted Mills, Providence, R. I.

Wm. E. Rowlandson has accepted a position as overseer of dyeing at the New England Bunting Company, Lowell, Mass. He was formerly employed at the Belvidere Woolen Mill, same city,

H. B. McCormac has been promoted to the position of superintendent of the Virginia Woolen Company, Winchester, Va., succeeding F. S. Hunt, who recently accepted a position at the Knoxville Woolen Mills, Knoxville, Tenn.

Kirk Verity has accepted the position as

assistant superintendent at the Knoxville Woolen Mills, Knoxville, Tenn., he was formerly employed at the Central Worsted Company, Central Village, Conn.

James Boothman has been appointed assistant agent of the new Ayer Yarn Mill, American Woolen Company. Mr. Boothman has been employed at the Washington Mills, and also at the Wood Worsted Mills, for a number of years.

Wm. B. Kimball, a resident of Bristol, R. I., died at his home at the age of 98 years. He was at one time superintendent of the Pokanoket Mfg. Company, and later in charge of the Reynolds Mfg. Company.

DEATHS.

Col. A. J. Sitton, one of the most prominent mill men of South Carolina, and owner of the Pendleton Mfg. Company, of Autun, S. C., died at his home in that place after a short illness.

Col. Franklin Allen, secretary of the Silk Association of America, which position he occupied at the time of his death, died at Ormond, Fla. He was well known to the silk trade in this country as well as by prominent manufacturers abroad. His residence was at 97 Columbia Heights, Brooklyn, N. Y.

Robert M. Bruce, head of the cotton firm of Bruce & Company, New York City, died at 869 Madison Ave., where he had been spending the winter, his home being at Greenwich, Conn. He was 86 years of age and a very charitable man, having given to many hospitals, among them being the Mount Sinai and hospitals for the crippled. He was born in New York in 1822.

Patrick Bannigan, a retired woolen merchant and brother of the late Jos. Bannigan, rubber king, died at three o'clock, March 1, at the family home, 44 Angel St., Providence, R. I. He was born eighty years ago and retired from active business some years ago.

Morris Bernstein, president of the American Silk Mfg. Company, died at his home, 8 West 117th St., New York City, after an illness covering a period of three months. Death was due to heart failure. The deceased was 59 years of age and is survived by a wife and two sons.

Chas. L. Hildreth, who has been connected with the Lowell Machine Shop, died at his home in Westfield, Mass., at the age of 85 years. He was foreman of the Lowell plant and later superintendent, retiring from that position about five years ago.

Jos. Bennor, superintendent of the Macon Knitting Company, Macon, Ga., died on March 19 at Macon and was buried in Philadelphia at Mount Peace Cemetery on March 23. Mr. Bennor was well known to the knitting trade and has been superintendent of the Macon Knitting Company for a number of years.

Geo. Evans, son of Wm. Evans, superintendent of the Parker & Hargraves Mills, Fall River, Mass., died at his home in that city at the age of 21 years. He was a graduate of the Durfee High School and attended Dartmouth College.

Hon. Edmond E. Truesdell, for twenty-five years superintendent of the China, Webster and Pembroke Mills, Suncook, N. H., and who died suddenly of heart trouble in Mexico, was buried at the Newton Cemetery, Newton, Mass.

Annie Coleman, paymaster and cashier for the two local mills of the American Woolen Company at Graniteville and Harrisville, R. I., died at her home following an operation which she underwent. She was a thorough business woman and her death brings sorrow to her family and many friends.

Geo. Edward Gould died at his home in Manchester, N. H., of apoplexy. He was born in Hillsboro, N. H., Nov. 8, 1852, and had been connected with the Contoocook Mills Company of Hillsboro for many years as its treasurer.

John Smith, 40 years of age, of 4 Kohlers Ave., Manayunk, Philadelphia, met death while employed at the Manayunk Mills. One of the large keen edged cutting blades became detached from the machine and struck him in the neck, almost decapitating him. He was taken to the St. Timothy Hospital and died shortly after arriving there.

Wm. E. Phillips, 72 years of age, died at his home in Springfield, Mass., February 25th. Mr. Phillips, some years ago, held the position of superintendent at Willimantic, in what is known now as the Windham Mfg. Company.

Geo. Bentley, a well known former resident of Woonsocket, R. I., died at Sangerville, Me. Mr. Bentley formerly held the position as boss weaver and assistant superintendent at the Privilege Mills in that city. He had been conneced with the Carleton Mills of Sangerville, for some time.

Simon Pilling, 44 years of age, died at his home at Hartford, Vt., having been in poor health the past two years. He attended the public schools at Killingly, Conn., where his family lived some years ago, and for several years was engaged in the manufacture of hosiery in what was known as the Pilling Mill on School St.

John Thornton, overseer of carding at the Smith Grove Woolen Mills, Chepatchet, R. I., died at his home in that village, March 14th, as the result of a shock. He leaves a wife, one son and three daughters. Mr. Thornton was a member of the National Association of Wool and Worsted Overseers.

Richard W. Andrews, superintendent of the Interlaken Company's mills at Harris and Arkwright, R. I., died suddenly at his home in Harris Village, February 20, of paralysis of the heart. Mr. Andrews had been ill for some time with pneumonia and confined to his home. He was in a very cheerful frame of mind during the day, anticipating an early return to his duties. The nurse in attendance was preparing lunch when without warning Mr. Andrews turned in the bed and expired. He was 66 years of age and is survived by his wife and one son.

James E. Rowe died at his home, 39 Mulberry St., Pawtucket, R. I. He had held a position as head mechanic at the E. Jenckes Mfg. Company of that city.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

1909 Directory of the Knitting Trade.

The American Directory of the Knitting Trade in the United States and Canada has been issued and can be supplied immediately upon order. This is the twenty-seventh annual edition.

A successful effort was made to canvass the field promptly so that the information might be fresh and available for early use in the trade. The result is that the information is brought close to the date of publication, insuring a high degree of accuracy. This will be appreciated by directory users.

A new feature has been added in the 1909 Directory of the Knitting Trade in the form of a department of New York Buyers. Names and addresses of buyers for the principal jobbers and retailers of the country are given.

A brief synopsis of contents of this Directory, familiarly known as "The Little Red Book" by the knitting trade, is given below:

Full report of every knitting mill in the United States and Canada arranged alphabetically by states and towns, giving capitalization; names of the officers, including superintendent and buyer; kind of goods made; number of knitting machines, whether latch or spring needle; number of sewing machines; whether the mill dyes or bleaches or finishes; kind of power; number employed; selling agent; kind and sizes of yarn bought.

Special copyrighted maps of the mill districts, showing the cities and towns where there are knitting mills. It is indexed so any town may be quickly found.

Carefully classified index of manufacturers according to kind of goods made. All the manufacturers of the same kind of goods are grouped together.

Alphabetical index of manufacturers, giving the page number where full report of mills may be found.

List of dyers, bleachers, finishers, printers, etc., making a specialty of knit goods work.

Manufacturers' selling agents and commission merchants handling knit goods; the name of the person in charge of the knit goods department is given. When a concern is sole agent or special selling agent for certain mills the names of the mills sold for follow the agents' names.

New York buyers of knit goods for out of town jobbers and large retailers; buyers are arranged alphabetically with the jobbers and retailers bought for arranged under the name of the buyer. The arrangement is such that jobbers may easily be distinguished from retailers.

List of jobbers of knit goods, telling the kind of goods handled and the name of the buyer, with the New York address.

Department stores and large retailers handling knit goods, with the names of the knit goods buyers and the address of the New York office.

An index of machinery and supplies used in the manufacture of knit goods, also yarn dealers supplying knitting yarn.

The American Directory of the Knitting Trade in the United States and Canada is published by the Lord & Nagle Company, 144 Congress St., Boston, Mass. The price is $1.50.

Overtime Law for Factories (Les Droits en matiere d'Henres Supplementaires); by Raymond Naurisse, Societe d'Editions Technique, 16 rue Pone-Neuf, Paris; Price 50 cents.

An outline of the laws regulating overtime in French mills. The text is in French.

Recent Theories of Dyeing (Neuere Faerbetheorien); by Dr. Carl G. Schwalbe; Ferdinand Euke, Stuttgart, Germany.

This work presents a summary of the theory of dyeing. Beginning with an historical review, it deals with the subject in subdivisions corresponding to the various branches of the art. It is written in a concise, clear style, with the evident object of eliminating all superfluous discussion and confining the work to such statements of theory as the practical man will find of value. The text is in German.

Principles of Woolen Spinning; by Howard Priestman; 314 pages, 5 1/2 by 8 1/2; Longmans, Green & Co., New York. Price $2.50.

The lack of literature on the carded woolen industry makes the present volume especially welcome It begins with a brief history of the woolen trade, which is followed by chapters on the following subjects: Wool and Wool Washing, Carbonizing, Shoddy, Oils and Soaps, Opening Processes, Mixing, Carding, Card Feeds and Condensers, The Mule.

The author has evidently taken great care in collecting the data for his work, which contains much useful information and will prove a valuable handbook for all engaged in the carded woolen industry.

Business Literature.

Notes on Sizing; Danker & Marston, 247 Atlantic Ave., Boston, Mass.

This booklet is a reprint of a technical article on cotton sizing which was recently published in England. It gives a large amount of useful information on this subject which should be in the possession of every manufacturer of cotton goods. One section of the article deals with gum Tragasol which is a most important sizing agent. Copy of this booklet will be mailed free on application to Danker & Marston.

The Taylor Gravity Underfeed Stoker.

A most attractive catalogue descriptive of the Taylor stoker system is issued by the American Ship Windlass Co., of Providence, manufacturers of this system. The pictures and drawings tell the story clearly. The advantages of the system are set forth concisely and convey the information which an interested party would wish to know.

Tests of Friction Clutches for Power Transmission; by Prof. R. G. Dukes; issued by the Hill Clutch Co., Cleveland, O.

A 15-page pamphlet which is a reprint of a paper presented before the last annual meeting of the American Society of Mechanical Engineers and which illustrates the various kinds of Hill clutches and methods of using same. This booklet will be forwarded to any one interested on application.

Increasing Facilities.

The Continental Latch Needle Co., of 120-122 Liberty St., New York City, report a steady increase in the volume of their business, which makes it necessary for them to augment their office force and take additional floor space. They import knitting machine needles of all kinds from Germany, and have the reputation of handling a very high grade article.

Tweedales & Smalley's Machinery.

The statement made in another publication that a reciprocal arrangement has been entered into between Tweedales & Smalley, Ltd., Castleton, England, and the Potter & Johnston Co. of Pawtucket, R. I., for the manufacture of their respective lines of machinery is not based on fact. We understand that no such arrangement has been entered into. The line of cotton machinery that is to be made by the Potter & Johnston Co. is entirely separate to that made by Tweedales & Smalley, and whatever may be the future developments, at the present time there have been no negotiations of this character undertaken; nor so far as the agent in this country for Tweedales & Smalley—H. G. McKerrow Co., Ltd., of Boston—is aware is there any prospect of this being done. Mr. Potter of Potter & Johnston Co. is now in England, and nothing definite can be known about this until his return.

European Connections.

A gentleman thoroughly familiar with the textile machinery business, connected with a leading concern in this country, is going abroad early in May in the interests of his own concern and probably to establish a machine shop and foundry to manufacture under the requirements of the foreign patent laws. He would like to represent several other lines which would not conflict and could make arrangements to take agencies for Great Britain and the Continent. Interested parties may address "Machinery," care Textile World Record.

One of the largest orders booked by the Crocker-Wheeler Company during the past week is that for fourteen 3 phase, 60 cycle squirrel cage induction motors, aggregating 220 horsepower for Johnson & Johnson, cotton manufacturers, New Brunswick, N. J. Other induction motor sales of the week are those for 160 horsepower of the wound rotor type for the Buffalo Copper & Brass Co., of Buffalo and a 20 horsepower for the Frick Co., Waynesboro, Pa. The demand for direct current apparatus still continues. The Eastwood Wire Manufacturing Co., Belleville, N. J., has ordered a 250 K. W. engine type generator, and the Atlantic Hotel, Bridgeport, Conn., has purchased a 35 K. W. similar machine. A large rolling mill near Pittsburg has placed an order for 244 horsepower of direct current motors of the rolling mill type. Other direct current sales are those of 20 motors for the Lanston Monotype Machine Co., Philadelphia; a 75 horsepower motor for the W. W. Herron Lumber Co., Mobile; and six motors for the F. P. Little Electric Co., Buffalo. There were a large number of smaller orders.

A Great Water Power Development.

The contract for the construction work involved in the Hydro Electric Development of the Grand Falls Power Company on the St. John River at Grand Falls, New Brunswick, has been placed in the hands of the Frank B. Gilbreth organization of New York. Mr. John B. McRae of Ottawa, Canada, is the Chief Engineer and Mr. Ralph Mershon of New York is the Electrical Engineer.

This plant will generate 100,000 horse power in electric current which will be furnished to the various cities throughout New Brunswick and Maine.

The work involves, among other features, the construction of a number of shafts in rock excavation 130 feet deep, a power chamber of 30 by 260 feet and 130 feet deep, and a tail race tunnel 28 feet in diameter and 2,400 feet long, a power house 350 feet long and 260 feet wide. The intake shafts will be 9 in number and 12 feet in diameter, 130 feet deep.

The plant will be equipped with the most approved hydraulic and electrical machinery for high potential and long distance transmission. Actual construction will be begun immediately and will be pushed through to completion at an early date.

The Falls and water power on the St. John River at this point is the largest in Eastern Canada and its development will result in the establishment of a large number of manufacturing enterprises. The total head developed will be 135 feet. Numerous auxiliary works, sub-stations and long distance transmission lines will be erected.

A large force of equipment and men will be employed and what is now a quiet village will be the scene of unusual activity in construction work.

The St. John River at Grand Falls (which is the largest river in New Brunswick) describes a horseshoe curve at this point and has a fall of 135 feet through a gorge of the most magnificent scenic beauty. This spectacle is second only to that of Niagara and its utilization, like that of Niagara, will result in a great increase in industrial activity in the Province.

Grand Falls is situated on the Canadian Pacific Railroad about 200 miles north of St. John, N. B., and about two miles east of the State of Maine.

The expenditure involved will amount to over $5,000,000.

The development of 100,000 horse power at Grand Falls is of great importance to the Province of New Brunswick, as it will foster new manufacturing industries on account of the low price for power that will be secured from this undertaking when completed.

Two carloads of engines, boilers, steam drills, derricks and other machinery have arrived at Grand Falls, New Brunswick, and are now being set up for the beginning of operations.

William Askin, formerly of Nova Scotia and afterwards of Boston, and Clarence A. Conrad, formerly of St. John, representing the Frank B. Gilbreth organization, have already arrived and taken charge of the preliminary work.

W. B. Laine, general manager for the Frank B. Gilbreth organization, has already placed large orders for supplies in St. John and is expected to make another trip to St. John in relation to ordering further plant and supplies during the first week

in April. Air compressors and much of the electrical machinery for the temporary power plant will have to be made to order, as such large machinery is not carried in stock and it is almost impossible to secure it second hand.

A Busy Mill.

The Woodland Worsted Mills at Cedar Brook, N. J., has had a very busy season, running overtime part of the winter. They have been obliged to turn down more orders than they have accepted. Starting with four looms, this plant has been increased until now fourteen looms are operated at full capacity, and if the present business holds, as seems likely from the present outlook, it may be necessary to still further increase the capacity. They make piece dyed and fancy worsteds for both men's and women's wear and have had great success with their piece dye resists on which they have been obliged to turn down many orders.

Mr. Frank Bailey is president and treasurer of these mills his son, Ben Bailey, is secretary and Louis C. Werner is the designer and superintendent.

Gandy Trade-marks Upheld.

The Circuit Court of the United States for the Western District of Pennsylvania, in the case of The Gandy Belting Co., of Baltimore vs. C. A. Turner, Inc., of Pennsylvania, has recently put its foot upon another case of wrongful use of their trade-mark.

It is well known throughout the trade that The Gandy Belting Co., of Baltimore, manufactures and sells a very high grade of stitched cotton belting and that for the purpose of identifying its belting as of its own manufacture and to distinguish it from belting made by others, it has for thirty-five years painted or dyed the belt red, to give it a distinctive appearance, and in addition thereto, has stamped upon the belt at every ten feet, a distinctive trade-mark consisting of a coil of belt with a bale of cotton laid across it and the words, "Gandy's Belt," and also the words "Genuine Gandy Belt."

The high quality of the Gandy belt has produced for it an enviable reputation, which has caused it to be in great demand among all manufacturers who desire a cotton stitched belt of the highest quality. This demand for what is known as Gandy belt has offered the opportunity to deceive purchasers by offering and selling to them a cotton stitched belt not made by The Gandy Belting Co., of Baltimore, but dyed red in imitation of the genuine Gandy cotton stitched belting, as and for the genuine red cotton stitched belting of the Gandy Belting Co., of Baltimore, and numerous instances of this kind of illegal passing off of spurious belting as and for genuine Gandy Belting have occurred during the past year. In 1907 an injunction was obtained against the Weller Mfg. Co., of Chicago, enjoining them from selling any red stitched cotton belting not made by The Gandy Belting Co., as and for the genuine red stitched cotton belt of The Gandy Belting Co., of Baltimore; and now another injunction has been issued by the United States Court in the Western District of Pennsylvania against C. A. Turner, Inc., of Pennsylvania for the same kind of illegal passing off of red stitched cotton belt not made by The Gandy Belting Co., as and for Gandy Belting and in response to request for Gandy Belting.

The Gandy Belting Co., feeling secure in its rights and having been sustained by the courts, is determined to prosecute every such case of illegal passing off of belts not made by it as and for belts of its manufacture which comes to its notice. On January 29, 1909, a decree was entered declaring that C. A. Turner, Inc., had "infringed upon the exclusive rights of the complainant (The Gandy Belting Co., of Baltimore) by the sale of red stitched cotton belting not made by The Gandy Belting Co., and billing the same as Gandy Belting, to the deception of the public; and perpetually enjoining and restraining the said company from directly or indirectly making or causing to be made, selling or causing to be sold, offering for sale or advertising, any cotton stitched belting not made by The Gandy Belting Co., painted or dyed red in imitation of the red stitched cotton belting of the said company, and from using in connection with the sale of cotton stitched belting, whether painted or dyed red or any other color, the word 'Gandy' or 'Gandy's' or any word so nearly resembling same as to deceive purchasers into the belief that the belting so marked and sold is of the manufacture of The Gandy Belting Co., of Baltimore."

On the strength of this decree an injunction was issued, restraining C. A. Turner, Inc., and "in every way prohibiting any infringement or violation whatsoever of the rights of The Gandy Belting Co., of Baltimore."

The high quality of the Gandy belt and its high reputation seems to be a constant temptation to imitators. The distinctive red color and the peculiar method of stitching, beside acting as a sort of trade-mark, produce a belt that is as long lived as it is flexible and preclude the possibility of air sacks or inequalities between the several plies of the double-selvage goods woven especially to size.

Singeing Yarns.

The electric singeing machine illustrated and described in our March issue for which the Electro-Textile Co., 136 Liberty St., New York, are the agents, is adapted for singeing linen, silk, schappe and other yarns as well as cotton yarns and in France it is being used on a great variety of fabrics with utmost satisfaction.

Free Ticket to Textile Exhibition.

The G. M. Parks Co., Fitchburg, Mass., have arranged with the management of the Textile Machinery Exhibition to be held in Boston April 26 to May 1 to honor the coupons printed in their advertisement in this issue of the Textile World Record for admittance to the Exhibition when properly filled out with name and address.

Messrs. Jos. Bancroft & Sons Co., Wilmington, Del., have ordered additional humidifying equipment from the American Moistening Co., Boston, Mass.

Allentown Silk Co., Allentown, Pa., have adopted the American Moistening Co.'s system of humidifiers.

Electric Hydro Extractor.

The electric driven hydro extractor placed on the market a short time ago by Dienelt & Eisenhart, 1304-18 North Howard St., Philadelphia, has proved to be a very popular machine with textile

manufacturers. It is easily installed and readily controlled.

This type of hydro extractor is built in three sizes, thirty, thirty-six and forty-two inches and the baskets are made in any style desired.

Steam driven hydro extractors are also manufactured by this concern and are extensively used by leading dyers and woolen manufacturers. These extractors are built with either engine on the side or engine on top. Baskets are made of wire, perforated boiler iron or perforated copper and are made in similar sizes, as the electric driven and also the belt driven machines.

The Henderson Mfg. Co., Hampton, Ga., have placed their order for humidifiers with the American Moistening Co., Boston, Mass.

Textile Mill Roofs.

The large roof area in the average textile mill makes cost an important factor in roofing material, and the fact that the roof protects costly machinery makes its weather withstanding qualities and its durability equally important.

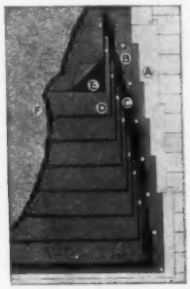
A textile mill roof must not only be weather proof, but also to a great extent proof against smoke, and dye house and bleachery fumes, as well.

Tar and gravel roofs if properly made have been found satisfactory in all these respects, and when laid there is no cost for up-keep as they are neither painted nor coated. Such roofs last for years.

The Barrett Mfg. Co. has developed a standard for roofs known as Barrett Specification and this specification is drawn up with care from principles in practice over sixty years.

This is the method of procedure:

First. Lay the sheathing or unsaturated felt (A)



lapping each sheet one (1) inch over the preceding one.

Second. Lay two full thicknesses of tarred felt (B) lapping each sheet seventeen (17) inches over the preceding one, and nailing as often as may be necessary to hold the sheets in place until remaining felt is applied.

Third. Coat the entire surface of this two ply with hot pitch (C) mopped on uniformly.

Fourth. Lay three (3) full thicknesses of felt (D) lapping each sheet twenty-two (22) inches over the preceding one, mopping with hot pitch (E) the full width of the twenty-two (22) inch lap between the plies, so that in no case in the last three plies shall felt touch felt. Such nailing as is necessary shall be done so that all nails will be covered by not less than two (2) plies of felt.

Fifth. Spread over the entire surface of the roof a uniform coating of pitch, into which, while hot, imbed the gravel or slag (F). The gravel or slag must in all cases be dry.

This specification is designed for roofs having a pitch not exceeding three inches to the foot. For steeper surface a different specification is necessary, and will be gladly furnished by the Barrett Mfg. Co. on application to their office in New York or any of the principal cities.

Amazo Colors.

Dyers and manufacturers interested in fashionable shades for worsted piece goods are requested by the American Dyewood Co., with offices in New York, Boston and Philadelphia, to send for shade card No. 124 showing Amazo fast colors.

Interesting to Worsted Manufacturers.

The present high price of olive oil has caused worsted manufacturers to look into the subject of oiling stock more carefully than ever before. Among the products which have received favorable attention is what is known as 70 per cent. Olive Oleine, for which the H. G. McKerrow Co., Ltd., 88 Broad St., Boston, Mass., are agents. This product has been used in Yorkshire by worsted mills spinning 60s and under for many years. Being distilled on a fixed formula it is always uniform and not being a viscous oil it does not gum up when the temperature drops or when the machinery is stopped over Sunday. The agents state that a saving of 6 per cent. in noils is shown in the use of Olive Oleine over lard or similar oils.

Turbo-Humidifier.

The Chicopee Mfg. Co., Chicopee Falls, Mass., has recently placed an order for the installation of the Turbo Humidifier system of air moistening with the G. M. Parks Co., Fitchburg, Mass., sole agents.

Iron Glue for Rolls.

H. M. Ament, 620 Camp St., Louisville, Ky., has invented a glue for fastening leather and other substances to iron, which is particularly useful in covering worsted and cotton rolls, pulleys, etc. It holds the covering until it is entirely worn out and saves its cost many times in leather alone.

Overseer's Association.

The second banquet of the Pawtuxet Valley Overseers' Association, recently organized, was held at the Commercial Hotel, Providence, R. I. Members and guests to the number of more than one hundred were present. After dinner the members listened to a paper on "The Cotton Fiber as an Individual Entity, Not as a Commodity," by Perry T. Phillips of the Philadelphia Textile School, and a sketch of the textile industry by Prof. Herman O. Werner of the Rhode Island School of Design. A vote of thanks was given to the speakers of the evening and the meeting adjourned shortly before ten o'clock.

The officers of the association, which now includes all the heads of departments in the Pawtuxet Valley cotton mills, including weaving, printing and finishing mills, are as follows: President, Samuel G. Aull, 2d, of Pontiac; Vice Presidents, James Wood, Warwick Mills, Centreville; Jacob Clegg, Hope Company's Mills, Phenix; Patrick Victory, Natick Mills, Natick; George E. Shearn, Crompton Mills, Crompton; John T. Duffy, Clyde Print Works, Riverside; Edward Franklin, Interlaken Works, Arkwright; Secretary, William A. Carpenter, Royal Mills, Riverpoint; Treasurer, Louis Levesque, Coventry Company's Mills, Anthony.

Those who had seats at the speakers' table were: George E. Shearn, Crompton; James Wood, Centreville; John Nichols, Crompton; John T. Duffy, Clyde; Edward Franklin, Phenix; W. A. Carpenter, Riverpoint; Louis Levesque, Anthony; Patrick Victory, Natick; Jacob Clegg, Phenix.

At the other tables were:

Geo. D. Capwell, Phenix; James E. Holmes, Phenix; John Mills, Crompton; Claus E. Larsen, Crompton; F. W. Miller, Pontiac; J. B. Handy, Crompton; Geo. A. Gardner, Crompton; Anthony Sulloway, Phenix; Oliver J. Chappelle, Apponaug; Geo. M. Cady, Apponaug; Wm. C. Brown, Riverpoint; James Dunn, Harris; Napoleon Raymond, Harris; Andrew M. Bigbie, Harris; John H. Bowker, Centreville; Allan C. Smith, Centreville; Wm. S. Gray, Fall River; H. R. Whitehead, Lonsdale; Richard Poas, Lonsdale; Joseph G. Stone, Arctic; W. H. King, Arctic; Daniel Kay, Riverpoint; Chas. H. Wilber, Natick; M. W. Bufford, Pontiac; F. O. Skagund, Pontiac; John Grimshaw, Pawtucket; W. N. Earnshaw, Central Falls; Thomas Cavanaugh, Central Falls; John McCavitt, Centreville; William Plante, Arkwright; Byron Brown, Hope; Cornelius Donahue, Riverpoint; John F. Murphy, Riverpoint; William Hawkins, Centreville; Richard Healy, Quidnick; J. F. Pace, Pontiac; G. Gardiner, Riverpoint; Frank Sherman, Providence; L. N. Gaboury, Natick; William Bloxham, Clyde; William M. J. Craig, Clyde; J. H. McNaughton, Manville; John Holt, Manville; Arthur Cocroft, Centreville; Edward Fryer, Centreville; A. E. Bullock, Centreville; Emanuel P. Rose, Riverpoint; Edward Butterworth, Clyde; John Goosetry, Crompton; George M. Urquhart, Riverpoint; Chas. E. Potter, Pontiac; James Kay, Crompton; Chas. Kaough, Riverpoint; Richard Haddock, Centreville; Louis Foley, Clyde; John McCabe, Clyde; John Ormerod, Riverpoint; Walter E. Budlong, Riverpoint, and others.

Hosiery Dyeing.

T. Brophy's Sons, Kensington Dye Works, Jasper St. above Clearfield, Philadelphia, have recently added to their equipment the latest improved machinery for the dyeing of all kinds of hosiery in sulphur black, tans and fancy colors. They will continue to dye all kinds of yarns, making a specialty of woolen and worsted yarns for dress goods and the finer grades of carpet as Saxony and Wiltons, body Brussels, Axminsters, etc.

The Hussong Machine.

The experience of leading dyers with the Hussong Dyeing Machine sulphur outfit has been most successful, as testimonial letters which have been printed from time to time in their advertisement have shown. One valuable feature of the Hussong machine which also appeals to dyers is the delivery of the yarn free from snarls and tangles. One of their customers informed them that they got 1/2 cent per pound more owing to the freedom from tangles and snarls.

The German firm of knitting machinery builders, Sander & Graff, celebrated on March 15 the twenty-fifth anniversary of the entrance into the firm of Mr. Ferdinand Graff, who is today sole proprietor. When he entered the firm twenty-five years ago they built only hand knitting machines, but have gradually added to their line all kinds of knitting machines operated by power, crochet machines, carding machines, etc.

The Hunter Piece Dye Kettle.

The James Hunter Machine Co., North Adams, Mass., builds a piece dye kettle of 3-inch clear cypress tongued and grooved stock which is certainly substantial enough to satisfy any requirements. This kettle is built in any size for any number of strings and equipped with an improved hump reel and friction pulley drive, so there is no shading or uneven dyeing. Their bulletin No. 53 describes the machine.

"Turbo" Installation.

The Nashua Mfg. Co. of Nashua, N. H., have recently placed an order with the G. M. Parks Co., Fitchburg, Mass., for an installation of the Turbo-Humidifier system of air moistening. It will include the auxiliary system of air cleaning described in the March issue of the Textile World Record. This is the second installation of this system in Nashua.

New York City Notes.

The New York office of the Canasawacta Knitting Co. has been removed to Room 926, 346 Broadway. F. J. Frey is selling agent.

The Oneita Knitting Mills of Utica, N. Y., have changed their New York office to Room 802, 366 Broadway. Chas. A. Mann is selling agent.

The Empire Knitting Mills Co., whose New York office was formerly at 49 Leonard St., are now located at Room 319, 366 Broadway.

Napier & Herrick, 346 Broadway, New York City, have been appointed sole agents for Allentown Knitting Co., Allentown, Pa. They make a line of ladies' straight and shaped rib vests.

The handsome new building 366 Broadway (corner of Franklin St.) is becoming the objective point of numerous concerns in the knit goods and yarn industries, being wonderfully well planned to admit the daylight, a very necessary factor in displaying goods. Among those who have already taken advantage of these conditions are: A. D. Salkeld & Bro., yarns; Geo. E. Ashwell, J. W. Allis, S. S. Carpenter, G. B. Bradley Co., Chas. A. Mann, Empire Knitting Mills Co., C. G. Culin, C. B. Van Nest, Oneita Knitting Mills.

Soluble Softening Oil is recommended by the manufacturers, the Arabol Mfg. Co., 100 William St., New York, as suitable for strong and close woven goods, such as corduroys, velveteens, sateens, umbrella cloths, cambric warps, etc. It gives a smooth finish to warps, the threads divide well in the lease rods and the cylinders of the slasher remain clean. It is neutral and its softening qualities are claimed to surpass tallow and not to be influenced by temperature.

Alfred Taff, importer of spun silk and schappe yarns, formerly at 69 Mercer St., is now located at 482 Broome St., New York City.

A Model Bleaching Plant.

Through the courtesy of Mr. John MacManus, the efficient superintendent of the Utica-Willowvale Bleaching Co., Chadwicks, N. Y., one of our representatives recently had the pleasure of inspecting this well equipped establishment. The plant was started in 1883, giving employment to 25 hands and its operations at that time were confined to the bleaching and finishing of wide sheetings and shirtings. In 1896 a department was added for the manufacture of sheets and pillow cases. In 1899 a further increase was made in the plant and the bleaching and finishing of fine goods, such as lawn, madras, India linons, in fact everything in the white goods line was added. The increase since that time has been gradual and nothing has been installed in the plant but machinery of the very latest designs, until today the plant furnishes employment to 450 people and has a capacity of 30 tons per day. In addition to the plant there are 3 large storage warehouses with a storage capacity of over 15,000 cases of finished goods, as well as various other buildings well appointed and arranged for the proper conduct of their rapidly growing business. The entire plant is equipped with the latest and most improved machinery.

The capitalization has been increased to $375,000. The officers of the company are D. N. Crouse, president; Charles B. Rogers, secretary and treasurer, and John MacManus, superintendent.

Mr. MacManus is not only held in high esteem by the stockholders and officers of this company, but also by the employes, as everything is done for their comfort. He has given much attention to welfare work. One of the latest improvements that he has recently installed is a kitchen and dining room fitted up with every convenience possible. An inspection was made of this department and it was found to be a model of cleanliness. The dining room will seat over 150 persons.

Their customers now include mills from all sections of the United States and the business is growing to enormous proportions. A good deal of the credit belongs to the far-sightedness, business ability and practical knowledge of the superintendent, Mr. John MacManus.

Julius Kayser & Co., Brooklyn, N. Y., have adopted the American Moistening Co.'s system of humidifiers.

Dundee Textile Co., Passaic, N. J., have placed a repeat order for humidifiers with the American Moistening Co.

Napier & Herrick, 346 Broadway, New York City, are now the exclusive selling agents for the products of the Novelty Knitting Mills of Philadelphia.

Messrs. Givernaud Bros., New York, silk manufacturers, have placed their order for humidifiers with the American Moistening Co., to be installed in their different mills.

Hampton Cotton Mills, Hampton, Ga., have adopted the American Moistening Co.'s system of humidifiers.

Recent Textile Patents.

FABRIC BLEACHING and Dyeing Machine. 914,797. George Collis, Dubuque, Ia.

FABRIC-FOLDING Machine. Tubular-knit. 915,229. Harry A. Shields, Nashville, Mich.

FABRIC INSPECTING and Marking Machine. 915,267. Jas. A. Butler, Winthrop, Mass.

HOSIERY. 915,551. Walter D. Butz, Norristown, Pa.

LOOM. 912,309. James J. Grogan, South Bend, Ind.

LOOM FILLING-DETECTING Mechanism. 913,196. Robert Burgess, Pawtucket, R. I.

LOOM. Automatic Filling-replenisher. 912,435. Melvin L. Stone, Lewiston, Me.

LOOM LET-OFF Mechanism. 912,722. Jonas Northrop, Hopedale, Mass.

LOOM LET-OFF Mechanism. 912,942. William F. Draper and Everett S. Wood, Hopedale, Mass.

LOOM MECHANICAL Weft-feeling Mechanism. 915,248. James Taylor and Edwin N. Buckley, Manchester, England.

LOOM-NEEDLE Motion. Pile Fabric. 912,648.

LOOM PICK-FINDER Mechanism. 913,301. Benjamin F. McGuiness, Worcester, Mass.

LOOM-PICKER Check. 914,360. Thomas Nevin, Lowell, Mass., assignor to the Draper Co., Hopedale, Mass.

LOOM SHEDDING Mechanism. Narrow Ware. 914,048. Elbridge R. Holmes, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, Worcester, Mass.

LOOM SHUTTLE Box Motion. 914,739. John M. Marco, Philadelphia, Pa.

LOOM. Side-filling Stop Motion. 915,472. Charles Partlow, Rockhill, S. C.

LOOM SELVAGE Motion. 913,095. Joseph Belavance, Webster, Mass.

LOOM SHUTTLE Mechanism. 913,667. Pierre Martourey, St. Etienne, France.

LOOM STOPPING Mechanism. Automatic Replenishing. 914,491. Robert Jamieson, Hopedale, Mass.

LOOM-REED. 915,335. Henry Cote, West Warren, and Renceler C. Snow, Ware, Mass.

LOOM TAKE-UP Mechanism. 913,914. Alonzo E. Rhoades, Hopedale, Mass., assignor to the Draper Co., Hopedale, Mass.

LOOM TAKE-UP Mechanism. 913,877. Paul Day, Hopedale, Mass., assignor to the Draper Co., Hopedale, Mass.

LOOM TEMPLE. 914,509. John E. Prest, Melrose, Mass.

LOOM TAKE-UP Mechanism. 913,969. James O'Sullivan, Biddeford, Me., assignor to the Draper Co., Hopedale, Mass.

LOOM TAKE-UP Mechanism. 913,908. Thomas Nevin, Lowell, Mass.

LOOM Thread-Parting Mechanism. Alonzo E. Rhoades, Hopedale, Mass.

SPINNING APPARATUS. Yarn. 913,164 Alonzo E. Rhoades, Hopedale, Mass., assignor to Draper Co., Hopedale, Mass.

SPINNING and Twisting Machine. Rotary Ring. 913,654. Chas. T. Atherton, Providence, R. I., assignor to Atherton Spinning Ring Co., Providence, R. I.

SPOOLING and Winding Machine Attachment. 913,416. Ralph D. Mershon, New York.

THREADING LOOM Reeds. Device for. 915,336. Henry Cote, West Warren, and Renceler C. Snow, Ware, Mass.

WOVEN FABRIC. Isaac E. Palmer, Middletown, Conn., assignor to the I. E. Palmer Co., Middletown, Conn.

Recent Textile Trade-marks Registered.

"Queen." Percales, batistes and canton-flannels. Tootle, Wheeler & Motter Mercantile Co., St. Joseph, Mo.

"King." Percales, batistes and canton-flannels. Tootle, Wheeler & Motter Mercantile Co., St. Joseph, Mo.

"Angel." Silk piece goods. Desenberg & Ganster, Los Angeles, Cal.

"The Gladys." Ladies' dress skirts and waists. Louis Deutsch, Chicago, Ill.

"Milmoa." Cotton and linen canvas. Freidman & Krieger, New York.

"Fankay." Cotton and linen canvas. Freidman & Krieger, New York.

"Chippewa." Woolen underwear. The Mandelert Mercantile Co., Chippewa Falls, Wis.

"Golfers' Friend." Stockings. Jos. Black & Sons Co., York, Pa.

"350." Cotton Table Tops or Cloths. Rosemary Mfg. Co., Roanoke Rapids, N. C.

"360." Cotton Table Tops or Cloths. Rosemary Mfg. Co., Roanoke Rapids, N. C.

"Walk-over." Shoe Laces. Geo. E. Keith Co., Brockton, Mass.

"Franklin." Spool Cotton, Sewing Cotton and Thread. The American Thread Co., Jersey City, N. J.

"Atlantic." Spool Cotton, Sewing Cotton and Thread. The American Thread Co., Jersey City, N. J.

"Bedford." Spool Cotton, Sewing Cotton and Thread. The American Thread Co., Jersey City, N. J.

"Arab." Rough Surface Broad Silk. Rogers & Thompson, West New York, N. Y.

"Neva." Cotton Piece Goods. The Millville Mfg. Co., Philadelphia, Pa.

"Priscilla." Ladies' Cotton Petticoats. Samuel Kraft, Moundsville, W. Va.

"Niagara Maid." Silk Gloves. Niagara Silk Mills, Tonawanda, N. Y.

"Puritan." Silk Piece Goods. York Silk Mfg. Co., York, Pa.

"Uknowit." Overalls, Dress Shirts, etc. Tootle Campbell Dry Goods Co., St. Joseph, Mo.

C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

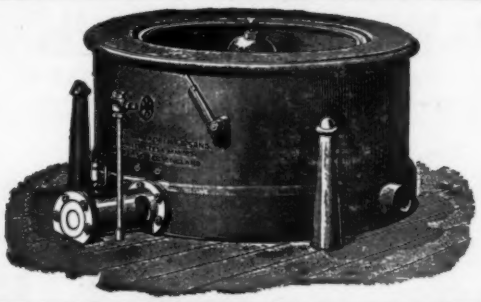
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

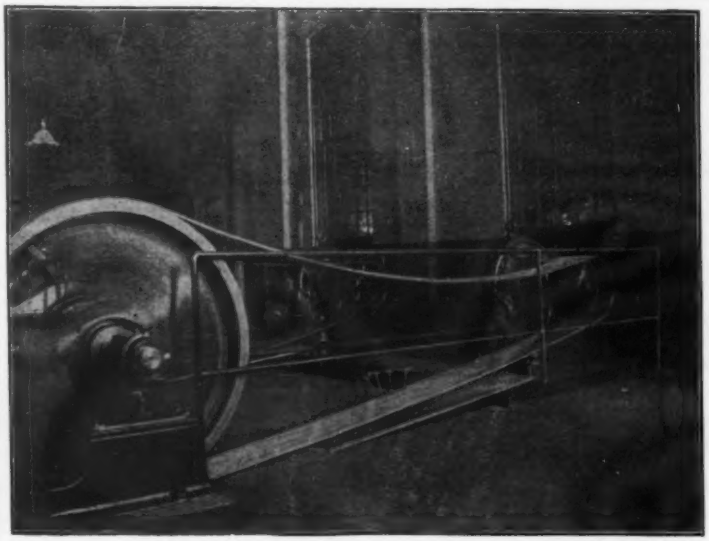
OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston



Static Electricity In Belts

This belt is an example of the way Cling-Surface will stop generation of static.

It was full of static, running tight and slipping more or less.

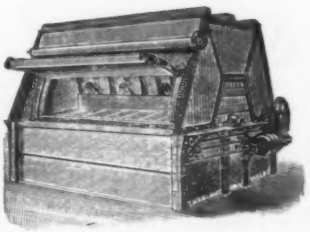
Cling-Surface stopped the slipping so belt could run slack and gave the soft, velvety face which Cling-Surface produces.

Static stopped at once and you note the chains, formerly used for grounding, pushed aside.

Cling-Surface will prevent static in every belt or rope you run, no matter what weather conditions are and we guarantee it. Write us or try at our risk.

CLING-SURFACE COMPANY 1051 Niagara Street BUFFALO N Y

NEW YORK BOSTON ATLANTA MEMPHIS, Etc.



RAW WOOL AND COTTON MACHINE.

MACHINES sold on 2 MONTHS' TRIAL

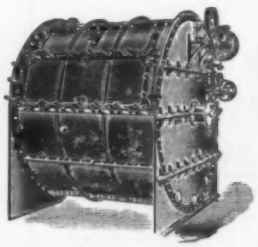
YOU TAKE NO RISK

SKEIN AND SLUBBING MACHINE.

THE KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.

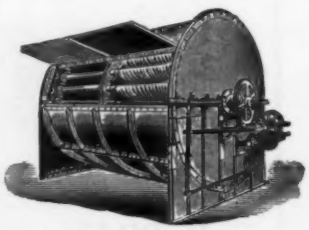


SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN LABOR ALONE IN FROM 6 TO 12 MONTHS ACCORDING TO CAPACITY

Southern Agent, O. A. ROBBINS, Charlotte, N. C.



SULPHUR SKEIN MACHINE.

Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Parks, G. M., Co.

Architects and Mill Engineers.
Dean, F. W.
Ferguson, John W.
Cramer, Stuart W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Bates & Robinson Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Ties.
Acme Steel Goods Co.
Reliable Tie Co.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Bearing Metals.
Dodge Mfg. Co.

Belting.
Burnham, E. E., Co.
Gandy Belting Co.
Graton & Knight Belting Co.
Rhoades, J. E., & Sons.
Schierin Co., Chas. A.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Schierin, Chas. A., Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Carbondale Calcium Co.
Danker & Marston.
Roessler & Hasslacher Chemical Co.
Siemens & Halske.

Blowers and Blower Systems.
American Blower Co.
Cameron Machine Co.
Dean Bros. Steam Pump Works.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.
Sirocco Engineering Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Mossberg, Frank, Co.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Lever, Oswald Co.
Universal Winding Co.

Boilers.
——See Steam Boilers.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Box Strapping.
Acme Steel Goods Co.

Braiding Machinery.
Mason Mfg. Co.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
——See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Caps.
Calder Machine Works.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schuchardt & Schutte.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Bates & Robinson Machine Co.
Crabb, Wm., & Co.
Howard Bros. Mfg. Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Carded Cotton.
Blaisdell, S., Jr., Company.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Richards, Atkinson & Haserick.

Carders' Tools.
Brown, Wm. H., Co.

Carpet Machinery.
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

Castings.
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chemicals.
Harding, Fancourt & Scull.
Roessler & Hasslacher Chemical Co.

Chemists.
Little, Arthur D.
McKenna, Dr. Chas. F.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Nanz, T., Clock Co.
Pettes & Randall Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.

Cloth Cutting Machinery.
Adams, A. L.
Cameron Machine Co.

Cloth Expanders.
American Finishing Machinery Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Leyland, Thomas, & Co.
Textile Finishing Machinery Co.

Cloth Testers.
Scott, Henry L., & Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Mossberg Wrench Co.

Coal.
Darrow Mann Co.

Combs (Wool and Cotton).
Hood, R. H., Company.
Jefferon, Edward, & Brother.
Leigh, Evan A.
Philadelphia Textile Machinery Co
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Stewart & Sons.

Condensers.
Dean Bros. Steam Pump Works.

Conditioning of Textile Fabrics.
New York Silk Conditioning Works.

Conveying Systems.
Dodge Mfg. Co.
Schnitzler, C. H.
Sturtevant, B. F., Co.

Cop Machinery.
Eppler, John, Mach. Works.

Cop Spindles.
American Textile Specialty Mchy. Co.
Hall, F. A., & P.

Cop Tubes.
American Textile Specialty Mchy. Co.
Hall, F. A., & P.
——See Paper Tubes.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Harrington & King Perforating Co.
Textile Finishing Machinery Co.

Corrugated Iron and Steel.
Scaife, W. B., & Sons.

Alphabetical Advertising Index, with page numbers, follows this list.

Cotton.
Blaisdell, S., Jr., Co.
Charles, W. B.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

Cotton Machinery.
Altemus, Jacob K.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Bates & Robinson Machine Co.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kip-Armstrong Co.
Kitson Machine Co.
Klauder-Weldon Dyeing Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
McKerrow, H. G., Co., Ltd.
Metallic Drawing Roll Co., The.
Palmer, I. E., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Providence Machine Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Textile Finishing Machinery Co.
Textile Machinery Co.
Whitin Machine Works.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Cotton Softeners.
Bosson & Lane.
Burckhardt & Co.
Danker & Marston.
Harding, Fancourt & Scull.

Cotton Waste.
Blaisdell, S., Jr., Co.
Charles, W. B.
Schofield, Edwin F.

Counting Machines.
Durbrow & Hearne Mfg. Co.
Root, C. J., & Co.
Schuhardt & Schutte.

Crayons.
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

Creosote.
Carbolineum Wood Preserving Co.

Cutting Machines.
Adams, A. L.
Cameron Machine Co.
Durbrow & Hearne Mfg. Co.
Oswego Machine Works.

Cylinder Oil (Superheated Steam).
Power Specialty Co.

Dobbies.
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

Dobby Chain.
Nuttall, George.

Doupe Cutters.
Cameron Machine Co.

Draughtsmen.
Cameron Machine Co.

Drawing Rolls.
Jefferson, Edward, & Brother.
Hood, R. H., Company.
Metallic Drawing Roll Co., The.

Drying Machinery.
American Blower Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Jefferson, Edward, & Brother.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Drying Boards.
Bull, William C.
Pearson, J. T.
Philadelphia Drying Mchy. Co.

Dusters.
——See Wool and Waste Dusters.

Dust Collectors.
American Blower Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Dyers, Bleachers and Finishers.
Brophy's, T., Sons.
Davidson, J. F.
Firth & Foster Co.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
Rowland, Samuel.
Solway Dyeing & Textile Co.
Utica Willowvale Bleaching Co.
Western Thread & Dye Works.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Blower Co.
American Laundry Mchy. Mfg. Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh, Evan A.
Leyland, Thos., & Co.
National Laundry Machinery Co.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Rodney Hunt Mach. Co.
Schwartz, L. H. A., & Co.
Schuhardt & Schutte.
Smith, Drum & Co.
Sturtevant, B. F., Co. (Drying).
Taylor & Fenn Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.
Klauder-Weldon Dyeing Machine Co.

Dye Tubs.
——See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Arabol Manufacturing Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Carbondale Calcium Co.
Cassella Color Co.
Danker & Marston.
Farbenfabriken of Elberfeld Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Jamaica Dyewood & Chemical Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Stein, Hirsch & Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Young, J. S., & Co., Ltd.

Dynamos.
——See Electric Lighting.

Edgings.
——See Tapes, Braids and Edgings.

Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
Crocker-Wheeler Co.
General Electric Co.

Electric Driven Pumps.
Dean Bros. Steam Pump Works.
General Electric Co.

Electric Fans.
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Crocker-Wheeler Co.
General Electric Co.

Electric Lighting.
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Motors.
——See Motors (Electric).

Electrolyzer.
National Laundry Machinery Co.

Elevators.
Salem Elevator Works.
The New York Revolving Portable Elevator Co.

Embossing Machines.
Cameron Machine Co.

Embroidery Machines for Hosiery.
Durbrow & Hearne Mfg. Co.

Employees' Time Recorders.
Pettes & Randall Co.

Engines.
——See Steam Engines.

Engine Repairs.
Fishkill Landing Machine Co.

Exhaust Heads.
Sturtevant, B. F., Co.
Power Specialty Co.

Fans—Exhaust and Ventilating.
——See Ventilating Apparatus.

Feed Water Heaters.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
Dodge Mfg. Co.
Scaife, W. B., & Sons.

Feeds.
——See Automatic Feeds.

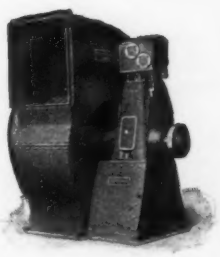
Feed Water Regulators.
Berry Engineering Co.

Alphabetical Advertising Index, with page numbers, follows this list.

STURTEVANT
Mechanical Draft

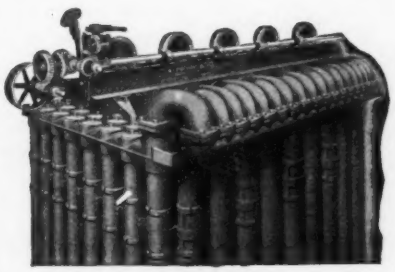
INCLUDES THE
MOST EFFICIENT
AND
MOST SATISFACTORY FAN

STURTEVANT MOTORS and ENGINES are



especially designed for fan driving; the sets are selected by our engineer to save power; they are just right in size and speed.

Fuel Economizers



INCREASE PROFITS . . . . .
REDUCE POWER PLANT LABOR
REDUCE NUMBER OF BOILERS
INCREASE CAPACITY OF PLANT

MOST EFFICIENT WITH

STURTEVANT MECHANICAL DRAFT . . . .

ALL JOINTS ARE METAL-TO-METAL

Let us send you Bulletin No. 158

B. F. STURTEVANT CO., BOSTON, MASS.

General Office and Works, Hyde Park, Mass.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters, Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Steam Turbines; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc.

Felt Hardeners.
Farrel Foundry and Machine Co.
Felting Machinery.
Farrel Foundry and Machine Co.
Fender Boards.
Case Bros.
Filters.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.
Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.
Fire Brick.
Borgner, Cyrus, Co.
Fire Extinguishers.
Badger, E. B., & Sons Co.
Fire Hose.
Eureka Fire Hose Co.
Fire Hydrants.
Norwood Engineering Co.
Fire Insurance.
Home Insurance Co.
Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.
Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combes-Barbour, Ltd.
Fluted Rolls.
Bates & Robinson Machine Co.
Hood, R. H., Company.
Leigh, Evan A.
Jefferson, Edward & Brother.
Riley, C. E., Company.
Thurston, A. G., & Son.
Flyers.
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hopkins Machine Works.
Jeffersbn, Edward, & Brother.
Leigh, Evan A.
Textile Machinery Co.
Fly Wheels.
Dodge Mfg. Co.
Forges.
Sturtevant, B. F., Co.
Friction Chains.
Oneida Community, Ltd.
Friction Clutches.
—See Clutches.
Friction Cones.
Evans Friction Cone Co.
Fuel.
Darrow Mann Co.
Fuel Economizers.
Sturtevant, B. F., Co.
Fulling Mills for Woolen Goods.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Rodney Hunt-Mach. Co.
Furnaces (Automatic Smokeless).
Murphy Iron Works.
Garnetts.
Bates & Robinson Machine Co.
Hunter, James, Machine Co.
Leigh, Evan A.
Smith & Furbush Machine Co.
Gas Blowers and Exhausters.
American Blower Co.
Sturtevant, B. F., Co.
Gaskets (Superheated Steam).
Power Specialty Co.
Gassing Machines.
Stubbs, Joseph.
Gauges.
Crosby Steam Gage & Valve Co.
Walworth Manufacturing Co.
Gears.
Dodge Mfg. Co.
Farrel Foundry and Machine Co.
New Process Raw Hide Co.
Gear Cutting.
Farrel Foundry and Machine Co.
Gear Cutting Machine.
Whiton, The D. E., Co.
Generating Sets.
American Blower Co.
Buffalo Forge Co.
General Electric Co.
Sturtevant, B. F., Co.
Geyser Water Heater.
Sargent's Sons, C. G., Corp.
Greases.
N. Y. & N. J. Lubricant Co.
Harness Twine.
Moore, C., & Co.
Harness and Frames.
Steel Heddle Mfg. Co.
Garland Mfg. Co.
Heating.
—See Ventilating Apparatus.
Heddles.
Howard Bros. Mfg. Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.
Hoisting Apparatus.
Economy Engineering Co.
Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.
Hosiery Labels.
Kaumagraph Company.
Humidifying Apparatus.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Parks, G. M., Co.
Hydraulic Rams.
Power Specialty Co.
Walworth Mfg. Co.
Hydro Extractors.
American Laundry Mchy. Mfg. Co.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dienelt & Eisenhardt, Inc.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Ice Machines.
Remington Machine Co.
Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.
Insurance (Casualty, Fire and for Loss of Profits).
Home Insurance Co.
Ironing Machines for Knit Goods.
American Laundry Machinery Mfg. Co.
Iron Glue.
Ament, H. B.
Jacquards.
Halton's, Thomas, Sons.
Jacquard Cards.
Case Bros., Inc.
Knit Goods, Edgings, Trimmings, Etc.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.
Knit Goods, Finishing Machines Crochet, Etc.
American Laundry Machinery Mfg. Co.
Hoffman, U. S.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Union Special Machine Co.
Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.
Knitting Machinery.
Ainsley Knitting Machine Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Climax Machine Co.
Cooper, Chas.
Crane Mfg. Co.
Dubied, Edouard, & Co.
Eppiers, John, Mach. Works.
Excelsior Knitting Machine Mfg. Co.
General Machine Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Jenckes, E., Mfg. Co.
Lamb Knitting Mach. Mfg. Co.
Leckie, Jas., & Son.
Leighton Machine Co.
Mayo, Geo. D., Knitting Machine Co.
Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams.
Stafford & Holt.
Standard Machine Co.
Taplor James.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.
Knitting Needles and Supplies.
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Lamb Knitting Machine Mfg. Co.
Keystone Latch Needle Co.
Mayo Knitting Machine & Needle Co.
Wardwell Needle Co.
Lace Dressing Plant.
Simms, Geo., & Sons.
Lamps, Electric.
Cooper Hewitt Electric Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Loom Pickers.
Loom Pickers Mfg. Co.
Looms.
Chernack Circular Loom Co.
Crompton & Knowles Loom Works.
Draper Company.
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Richards, Atkinson & Haserick.
Stafford Co., The.
Whitin Machine Works.
Loopers.
Beattie Manufacturing Co.
Hepworth, John W., & Co.
Leighton Machine Co.
Lubricants.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.
Lubricators.
Detroit Lubricator Co.
Walworth Mfg. Co.
Lumpers.
Gerry, George, & Son.
Schofield, Wm., Co.
Machine Designers.
Adams, A. L.
Cameron Machine Co.
Machinery Dealers.
Jefferson, Ed., & Bro.
Lamb, J. K., Textile Mach. Co.
Schofield, Geo. L.
Taylor, James.
Machinists.
Adams, A. L.
Calder Machine Works.
Cameron Machine Co.
Machinists' Tools.
Whiton, The D. E., Co.
Mails.
Walder, J.
Marking Pots.
Bradley, A. J.
Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliott & Hall.
Mechanical Draft.
American Blower Co.
Sirocco Engineering Co.
Sturtevant, B. F., Co.

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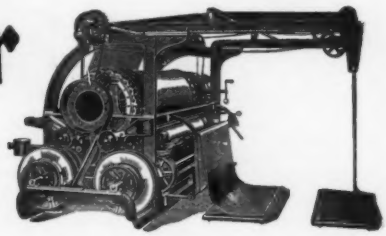
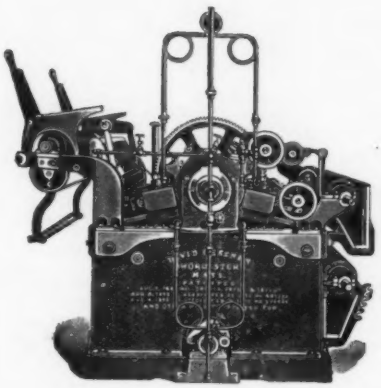
David Gessner

Worcester, Mass.

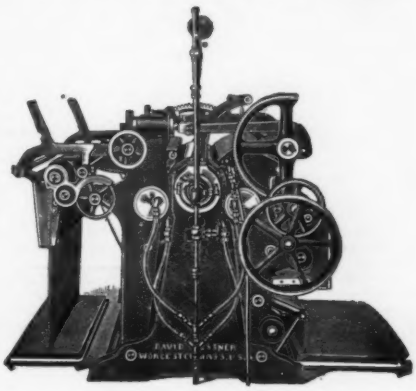




Latest Improved Cloth Finishing Machinery

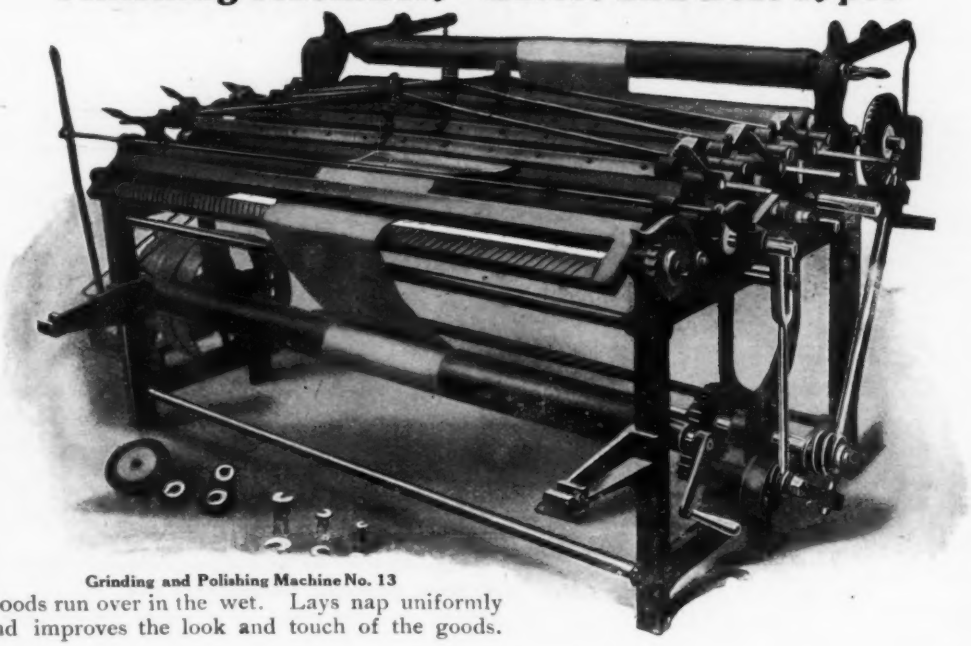
—

Napping Machines and Presses a Specialty



Schuchardt & Schutte, 90 West St., New York

Finishing Machinery—Latest and Best Types



Grinding and Polishing Machine No. 13

Goods run over in the wet. Lays nap uniformly and improves the look and touch of the goods.

Mechanical Draughtsmen.
Sturtevant, B. F., Co.
Cameron Machine Co.

Mechanical Engineers.
American Blower Co.
Dodge Mfg. Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Mechanical Stokers.
American Ship Windlass Co.
Murphy Iron Works.

Mercerizers.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.

Mercerizing Machinery.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

Metallic Fire-proof Window Frames and Sashes.
Badger, E. B., & Sons Co.

Metallic Packing.
Power Specialty Co.

Mill Architects.
——See Architects and Mill Engineers.

Mill Builders and Engineers.
Ferguson, John W.

Mill Supplies.
American Supply Co.
Bamford & Smith.
Buckley's, Benjamin, Sons.
Burnham, E. E., & Co.
Crabb, Wm., & Co.
Crosby Steam Gage and Valve Co.
Easton-Burnham Co.
Eureka Fire Hose Co.
Garland Mfg. Co.
Jefferson, Ed., & Bro.
Lane, W. T., & Bro.
Leigh, Evan A.
Murphy, E. W., & Co.
N. Y. & N. J. Lubricant Co.
Philadelphia Drying Machinery Co.
Pratt, R. C.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Richardson Bros.
Schierin, Chas. A., Co.
Shaw, Victor, Ring Traveler Co.
Stephenson Mfg. Co.
Sweet & Doyle.
Thurston, A. G., & Son.
Vandegrift, Elias T.
Walworth Manufacturing Co.

Motors (Electric).
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Napping Machinery.
Birch Bros., Somerville Machine Wks.
Cocker Machinery Co.
Curtis & Marble Machine Co.
Gessner, David.
Leigh, Evan A.
Parks & Woolson Machine Co.

Noils (Silk).
Ryle, Wm., & Co.

Non-Fluid Oils.
N. Y. & N. J. Lubricant Co.

Numbering Machines.
Dunbrow & Hearne Mfg. Co.

Oil Cups.
Walworth Manufacturing Co.

Oils.
Borne, Scrymser Co.
Burckhardt & Co.
Harding, Fancourt & Scull.
Murphy, E. W., & Co.
New York & New Jersey Lubricant Co.
Stephenson Mfg. Co.

Oil Stencil and Press Board Paper.
Bradley, A. J.

Overseaming Machines.
Merrow Machine Co.
Singer Sewing Machine Co.

Packings (Metallic).
Power Specialty Co.

Paints (Wood Preserving).
Carbolineum Co.

Pantagraphs for Mill Engraving.
Johnson, C. A., & Co.

Paper.
Merwin Paper Co.
Richardson Bros.

Paper Boards.
Merwin Paper Co.

Paper and Cloth Slitters.
Cameron Machine Co.

Patent Solicitors.
Crosby & Gregory.
Foulds & Galland.
Howson & Howson.

Perforated Metals.
Harrington & King Perforating Co.
Hopkins Machine Works.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Pinking Machines.
Durbrow & Hearne Mfg. Co.
Oswego Machine Works.

Pipes and Fittings.
Scaife, W. B., & Sons.
Walworth Manufacturing Co.

Pneumatic Conveying.
——See Ventilating.

Portable Hoists.
Economy Engineering Co.
The New York Revolving Portable Elevator Co.

Power Transmission Machinery.
Almond, T. W., Mfg. Co.
American Pulley Co.
Cell Drier Machine Co.
Cresson, Geo. V., Company.
Dodge Mfg. Co.
Evans, G. Frank.
Farrel Foundry and Machine Co.
Hunter, Jas., Machine Co.
Kilburn, Lincoln & Co.
Oneida Steel Pulley Co.
Philadelphia Drying Machinery Co.
Phillips Pressed Steel Pulley Works.
Reeves Pulley Co.
Saginaw Manufacturing Co.
Schofield, Wm., Co.
Sellers, William, & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Preparatory Machinery (Cotton).
Howard & Bullough Am. Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E., Company.
Saco & Pettee Machine Shops.

Preservatives.
Carbolineum Wood Preserving Co.

Presses.
Automatic Machine Works.
Boomer & Boschert Press Co.
Butterworth, H. W., & Sons Co.
Curtis & Marble Machine Co.
Gessner, David.
Hart, Charles.
Hoffman, U. S., Co.
Minnich Machine Works.
Phila. Drying Machinery Co.
Spence & Rideout.
Textile Finishing Machinery Co.
Woonsocket Machine & Press Co.

Press Boards.
Case Bros., Inc.

Press Papers.
Merwin Paper Co.
Philadelphia Drying Mchy. Co.
Richardson Brothers (Importers and Dealers).

Pressure Regulators.
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Producer Gas Power Plants.
Cameron Machine Co.

Pulleys.
——See Power Transmission Machinery.

Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.
Lawrence Pump & Engine Co.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Pump Governors.
Crosby Steam Gage & Valve Co.
Dean Bros. Steam Pump Works.
Walworth Mfg. Co.

Purifying & Filtration Plants.
Dodge Mfg. Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Quillers.
Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.

Rag Pickers.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

Raveling Machines.
American Raveler Co.

Raw Hide Gears.
New Process Raw Hide Co.

Reed and Harness Manufacturers.
American Supply Co.
Nuttall, George.
Stewart & Sons.
Walder, J.

Reducing Valves.
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Regulators (Pressure).
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Ribbon Cutters.
Cameron Machine Co.

Ribbons.
Cheney Bros.

Ring Travelers.
Shaw, Victor, Ring Traveler Co.

Roofing.
Barrett Mfg. Co.

Roller Leather.
Jefferson, Edward & Brother.

Roll Coverers.
Burnham, E. E., & Co.

Rolls (Brass, etc.).
Simms, Geo., & Co.

Rope.
Dodge Mfg. Co.

Rope Dressing and Preservative.
Cling-Surface Co.

Rope Transmission.
Cresson, Geo. V., Company.
Dodge Mfg. Co.

Roving Cans.
Hill, James, Mfg. Co.
Standard Fibre Co.

Roving Reels.
Scott, Henry L., & Co.

Sash Cord Braiders.
Mason Mfg. Co.

Scallop Machines.
Merrow Machine Co.

Schools.
American School of Correspondence.
International Correspondence Schools.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.

Scleroscope for Metal Testing.
Shore Instrument & Mfg. Co.

Screens (Perforated Metal).
Harrington & King Perforating Co.

Secondhand Machinery.
——See Mchry. Dealers, also classified Ads.

Separators (Yarn).
Draper Co., The.

Sewing Machines and Supplies.
American Raveler Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Singer Sewing Machine Co.
Textile Finishing Machinery Co.
Union Special Machine Co.

Shafting, Hangers, Etc.
——See Power Transmission Machinery.

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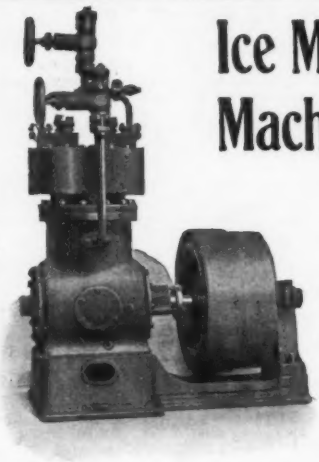

Ice Making Machines

of any capacity from 500 lbs. up, per day.

Send for catalogue.

Every Textile Mill can make money by installing its own Ice Making Plant: Ask Joseph Bancroft & Sons Co., Massachusetts Mills in Georgia, Erwin Cotton Mills, Duke, N. C., Belton Mills, Belton, S. C., or

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We import a most complete and extensive line of **Cotton, Silk, Worsted and Fibre Machinery, Mill Supplies, Egyptian Cotton and Burlaps.** Representing the leading foreign manufacturers and dealers and keep thoroughly

Atkinson

up with the latest improvements in Textile Machines. We should be pleased to communicate with parties contemplating

&

any changes or additions in mill equipments and to send circulars describing at length our machines and supplies.

Haserick

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8 CURRER STREET, BRADFORD, ENG.
PHILADELPHIA OFFICE, THE ARCADE

Darrow-Mann Company

New River Consolidated Coal & Coke Co.'s

New River Coal

Nonpareil Bituminous . . All Rail and Tide Water
Gas Coal and Gas Slack . All Rail and Tide Water
Nos. One, Two and Three, Buckwheat

30 Kilby Street, - Boston, Mass.

Shearing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.
Sheet Metal Work.
Scaife, W. B., & Sons.
Shell Rolls.
Thurston, A. G., & Son.
Shoddies.
——See Wool Shoddies.
Shuttles.
——See Bobbins, Spools, Shuttles, Etc.
Silk Machinery.
Arlington Mch. Wks. (Arthur Birch, prop.)
Butterworth, H. W., Sons Co.
Leigh, Evan A.
Mason Machine Works.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.
Silk Mill Supplies.
Hall, I. A., & Co.
Silk Noils.
Fawcett, Hughes.
Singe Plates.
Butterworth, H. W., Sons Co.
Taunton, New Bedford Copper Co.
Textile Finishing Machinery Co.
Singeing Machines.
Automatic Machine Works.
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Electro-Textile Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
Stubbs, Joseph.
Textile Finishing Machinery Co.
Sizing, Starch and Gums.
American Diamalt Co.
Arabol Mfg. Co.
Corn Products Refining Co.
Danker & Marston.
Miller Mfg. Co.
New Brunswick Chemical Co.
Stein, Hirsch & Co.
Skylights.
Van Noorden, E., Co.
Slashers.
Leigh, Evan A.
Lowell Machine Shop.
Riley, C. E., Company.
Soaps.
Dobbins Soap Mfg. Co.
Miller Mfg. Co.
Special Machine Designers.
Cameron Machine Co.
Spindles.
Bamford & Smith.
Bodden, Wm. & Son, Ltd.
Buckley's, Benjamin, Sons.
Calder Machine Works.
Draper Company.
Easton-Burnham Co.
Hall, F. A. & P.
Hopkins Machine Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.
Spindle Tubes.
Bamford & Smith.
Calder Machine Works.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.
Spinning Frame Saddles.
Dixon Lubricating Saddle Co.
Spinning Rings.
Draper Company.
Hall, F. A. & P.
Howard & Bullough American Machine Co.
Whitinsville Spinning Ring Co.
Spinning Tubes.
Buckley's, Benjamin, Sons.
Jefferson, Edward & Brother.
Spools.
——See Bobbins, Spools, Shuttles, Etc.
Spoolers.
Draper Company.
Easton & Burnham Machine Co.
Lindsay, Hyde & Co.
Lowell Machine Shop.
Payne, George W., & Co.
Stacks.
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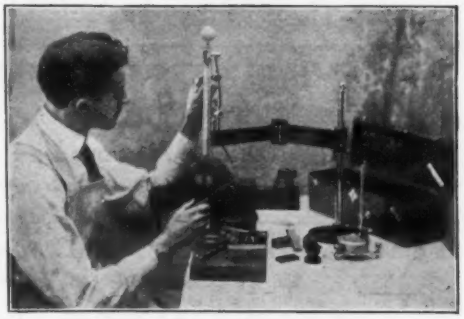

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Infants' same grade as each of last two above.

Men's 200 Needle, Double Sole, weight 18 oz.

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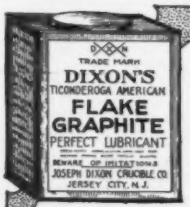

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McCAIN HOSIERY CO., 5 Buffum St., Lynn, Mass.

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Two sets of Hussong Hosiery Dyeing Machines for sulphur black, consisting of two iron and three wooden dye tubs, complete with iron cages, hoist, track, air compressor and tank, in absolutely first-class condition. Sold only because owner has discontinued sulphur black process. For particulars address Hussong Dye, care Textile World Record, Boston, Mass.

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Fretz Bldg., 10th and Diamond Sts., Phila., one of the largest and best buildings in Phila. for manufacturing, centrally located 15 minutes from Broad St. Station and North Phila. Station, P. R. R. and the Reading Terminal, P. & R. Ry., 5 minutes from 9th and Columbia Ave. Station, P. & R. Ry. Freight Stations close, light all sides, ample power, three elevators, basement space for storage, rents moderate. insurance rate very low, elevator and watchman's service free, power and light 4c per kilowatt hour.

At present we have for rent the following rooms: second floor Room "A" 13,000 sq. ft., fronting on Diamond St., room "B" second floor, 8000 sq. ft., room "C" second floor 14000 sq. ft., fronting on Susquehanna Ave. and Warnock Sts., half of room "C" eighth floor, containing 7000 sq. ft. very light. Room "B" first floor containing 8000 sq. ft., suitable for machine business, or heavy stamping work. All very desirable rooms, also 22,000 sq. ft. basement space suitable for storage purposes.

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Knitting Machines Wanted

Second hand Grosser or Lamb hand or power knitting machines, six needles per inch, eighteen or twenty inch bed. The Reliance Knitting Co., Toronto, Canada.

Wanted: Several second hand Whitin Long Chain Quilling machines, 378 ends. Give age, condition and price. Address Hope Mills Mfg. Co., Hope Mills, North Carolina.

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Offers free water, free lights, exemption from local taxes, good banking and shipping facilities. Industries seeking location write, Secretary Board of Trade Union, New York.

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For narrow elastic webbing. State particulars and price. Address Elastic, Care of Textile World Record, Boston, Mass.

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1 66-inch Double Crabbing Machine, Kenyon, new.

1 6-4 4 Cylinder Sanding and Polishing Machine with Steam Attachment, Curtis & Marble, new.

1 40-inch Hydro Extractor for Acid Work, with new Copper Leaded Basket, Tolhurst.

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PASSAIC, N. J.

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Located in the Heart of the City of Passaic, New Jersey.
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Containing Floor Space of over 29,500 Square Feet

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Nearly new set of frame factory buildings consisting as follows:

Good office accommodations, main building, 110′ x 60′ with ell, 90′ x 40′, 4 stories high. Carding Mill, 55′ x 37′, 2 stories high. One storage shed, 65′ x 21′, 1 story high. One storage shed, 65′ x 24′, 1 story high. Storage building, 60′ x 45′, 3 stories high with loft. Fine water power, approximately 100 to 150 Horse Power with 75 to 100 H. P. water wheel. Also fitted with new 150 H. P. boiler. 1 – 75 H. P. engine, for use in case of accidents or low water caused by drought. Also full equipment of pumps, blowers, heating system, electric light plant. Buildings also sprinkled and connected with city water.

Located in the city of Bangor, Me., a city of upwards of 30,000 population and excellent place to secure labor Situated on the line of Bangor & Old Town Electric road, with switch and side track to plant. Just the place for woolen manufacturing. Would sell at reasonable price, or rent for term of years to responsible parties. For further information apply to

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MAKE OFFER FOR ANY OR ALL

1—Skein mercerizing machine, centrifugal motion, complete, made by Kleinwefer, Kreifeld, Germany. Capacity 600 pounds per day.

40–Open Arc lamps, complete with reflectors, carbons' etc. Practically new.

2—100 inch Mangles, made by the Troy Laundry Machinery Co. Practically new.

1—80 inch Steel roll Calender

1—3 section body knitting machine, automatic narrowing and widening, complete, made by Seyfert & Donner Co.

2—Altemus cone bobbin winders, 64 spindles each.

2—Double deck National Mill soft silk winders, 160 spindles each.

1—13 in. Nye & Tredick, Cut 12 to in. Circle machine
4—14 " " " " 12 " " " "
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1—1¼ in. McMicheal & Wildeman, Tubing.

1—1¼ " Roesher, Tubing. Circle machine.

2—4 section Tiffany, (ribbed top) 36 gauge. Circle machine.

1—5 section Tiffany, (ribbed top) 36 gauge. Circle machine.

1—Swiss sleever, 13 gauge 50 centimeter.

1—Swiss Aut. sleever, 13 gauge. 40 centimeter.

1—Seyfert & Donner, 13 gauge. 50 " Garment.
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2—Klom, 13 gauge. 56 centimeter. Garment.
3— " 13 " 33 " Sleever.

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[Tex. World Rec. 4-09.)

WANTED. SETTING UP MAN

And all round machinist on woolen and worsted cards. State age and full particulars. Answers to this inquiry will be treated in a confidential manner. Address

LOMBARD MACHINE CO., Worcester, Mass.

WANTED

A good practical Woolen Mill man who will invest five or ten thousand dollars and take full charge of a small mill. Building and equipment first-class. Address W. A. H., care of Textile World Record, Boston, Mass

WANTED

A competent man to take charge of a new hosiery mill with four or five thousand dollars capital to take stock in same. For further information, write Selocta Hosiery Mill, Talladega, Ala.

WANTED

By well known agents, the Agency for Hosiery and Knit Goods from good mill to sell from Denver west to the coast to the jobbing and large department store trade, on a commission basis:—address Caro & Upright, 717 Market St., Rooms 510 and 510½ San Francisco, Cal.

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I would like to correspond with a party living in Eastern Massachusetts or Rhode Island who would like to take an agency of a large Life Insurance Company where an opportunity is presented to make a good living the first year, leaving renewals for future profit and saving.

Address with particulars of present or former occupation,

T. H. L., care Textile World Record.

PARTNER WANTED.

Man with practical mechanical knowledge and experience as partner in textile business of long standing and good reputation or will sell entire interest to the best advantage.

Best of references can be obtained from this office.

Address F. T. C. care Textile World Record, Boston, Mass.

WANTED: EXPERIENCED CUTTER

To take charge of the Cutting Department of Mill making Ladies' and Children's Ribbed Underwear, winter weights. For further particulars apply stating experience. "H C.," care Textile World Record, Boston, Mass.

WANTED

Knitting Machine Salesman.

T. A. R.,

Care Textile World Record.

TEXTILE INVENTORS

Who wish their patents perfected or manufactured and placed upon the market address confidentially with full particulars.

LOMBARD MACHINE CO., Worcester, Mass.

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Party leaving for England early in May to represent Textile Machinery concern in Great Britain, continent, Australia, and New Zealand is open for other lines. Will be connected with a well equipped machine shop and foundries, and can manufacture if required. Address

MACHINERY, Textile World Record.

A GREAT OPENING.

We have a small Hosiery Mill located in the best state in the Union with 750 accounts opened. Want a man who understands the manufacture of Hosiery to put in a few thousand dollars and take an active part. We own our machinery, building and ground. All paid for. Want more capital to take care of our growing business. Would prefer one who understands dyeing and finishing. Address

J. E. STROHM,
124 N. Water St., Decatur, Ill.

Fine Factory Plant For Sale.

At Elkhart, Ind. on L. S. & M. S. Ry., two-story brick mill constructed building, 400 by 80 ft., equipped with Sprinkler System, electric light plant, shafting, power plant with 275 H. P. Corliss Engine, 8 acres of ground, 2 side tracks, good live manufacturing city, suitable for Textile Factory.

C. A. KIMBARK,
240 LaSalle Street, Chicago, Ill.

Situations Wanted.

The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufacturers who may be in need of such men may address them in care of Textile World Record, Boston or state their requirements directly, and the addresses of suitable men will be furnished without charge

Mr. C. T. Donlevy, a practical mill overseer and superintendent, who has a wide acquaintance with mill men, gives special attention to this department. He would be pleased to hear from any of his friends who may be interested. Address Textile World Record, 144 Congress St., Boston, Mass.

COTTON SUPERINTENDENTS.

Superintendent; worked on lawns, dimities, lenos, checks, cam and dobby looms, huck, crash, Turkish towels, specialty on jacquard work, damask, portieres, satin and marseilles quilts, crochets, etc.; familiar with all makes of carding and spinning machinery, also C. & K. looms, Lewiston, Mason, K. & L., Draper's single and double left jacquards; understands bleaching and finishing; 40 years of age, married; good reference. 4351, Textile World Record, Boston, Mass.

Superintendent of a Cotton Mill or overseer of finishing; worked on ducks, denims, ginghams, domets, awnings, canton flannels, ticking, scrim, etc.; has a good general knowledge of machinery in all departments; prefers New England; 38 years of age; good reference. 4355, Textile World Record, Boston, Mass.

Cotton Superintendent; has been boss carder, ring spinner and comber on all kinds of cotton yarns, hosiery yarn a specialty; first class references; age 44, married. 3025, Textile World Record, Boston, Mass.

Superintendent of a cotton mill; worked on plain cotton goods, automobile tire ducks, also yarns; familiar with all kinds of American and English makes of machinery; good reference; 47 years of age, married. 4179, Textile World Record, Boston, Mass.

Superintendent of a Cotton Mill or overseer of carding in a large mill. Worked on yarns of all kinds, combed and carded. Understands all makes of machinery. 29 years of age, married. Good reference. 4675, Textile World Record, Boston, Mass.

Superintendent or Manager of a cotton mill; worked on sheetings and drills, but can handle most anything; familiar with Lowell Machine Shop, Saco & Pettee and Kitson makes of machinery; will not go West or Canada; prefers New England; 53 years of age, married; good reference. 4187, Textile World Record, Boston, Mass.

Superintendent of Cotton Yarn or weaving mill; might consider a position as overseer of ring spinning, spooling, warping or slashing in large mill on stripes, checks, tickings, sheetings and lawns; all kinds of machinery; good reference; 35 years of age, married. 4696, Textile World Record, Boston, Mass.

Superintendent of a Cotton Mill or position as overseer of mule and ring spinning, spooling, warping and twisting; worked on prints, hosiery, sale yarns, sheetings and dress goods; familiar with all modern makes of machinery; good reference; 45 years of age, married. 4694, Textile World Record, Boston, Mass.

Assistant Superintendent of a cotton mill or superintendent of a small mill; worked on print, hosiery yarns, corduroys, yarns 10s to 90s, carded and combed, also familiar with fancy weaving; familiar with Lowell cards, drawing, fly frames and spinning, Platt, Nasmith, Hetherington combers, Lowell, Lewiston, Crompton, Draper, Whitin and Lyall looms; will not go West, South or Canada; 30 years of age, single; good reference. 4219, Textile World Record, Boston, Mass.

Superintendent of a Cotton Mill, assistant superintendent, overseer of weaving or designer; worked on drills, sheetings, ducks, fine lawns and fancies; 34 years of age, married; good reference; 4217, Textile World Record, Boston, Mass.

Supt., Asst. Supt. or overseer of carding; position wanted by a man 39 years of age, married, American; is experienced on all kinds of cotton colored goods, long or short stock, also on bleached stock; is familiar with Colvin, Whitin and Crompton looms, and all makes of carding and spinning machinery; good references. 3585, Textile World Record, Boston, Mass.

WOOLEN SUPERINTENDENTS.

Superintendent, assistant superintendent or boss weaver in a large mill; worked on fine fancy worsteds, both men's and women's wear, fancy woolens, dress goods, kerseys, broadcloths, satinets, cotton worsteds and flannels; familiar with all makes of machinery; will not go West, South or Canada; 34 years of age, married; good reference. 4365, Textile World Record, Boston, Mass.

Superintendent or assistant superintendent of a worsted yarn mill; familiar with Prince, Smith, Lowell Machine Co., Davis & Furber cards; Draper and Whitin looms; familiar with dress goods; 26 years of age, American; good reference. 4345, Textile World Record, Boston, Mass.

Superintendent or Manager of woolen mill; position wanted by a man 47 years of age, married, Scotch; is experienced on worsteds, fancy cassimeres, homespuns, meltons, thibets, kerseys, overcoatings, cheviots and dress goods; is familiar with all kinds of woolen machinery; good references 3619, Textile World Record, Boston, Mass.

Worsted Superintendent or overseer of combing, spinning and twisting; worked on mohair, alpaca, all foreign and domestic wools; familiar with all kinds of machinery; first class references; age 45, married. 3248, Textile World Record, Boston, Mass.

Superintendent of a Woolen Mill, wool, cotton or wool waste buyer. 42 years of age, married. Worked on woolens, plain and fancy, also worsteds. Will go anywhere for a good position. Good reference. 4587, Textile World Record, Boston, Mass.

Manager, superintendent or designer; age 30, English, married; experienced in England and in this country; mohairs, all classes of worsted suitings, plain and fancy dress goods. 3184, Textile World Record, Boston, Mass.

Manager, Agent, Supt. or supt. and designer; position wanted by a man 57 years of age, English, married; has worked on all classes of woolen and worsted goods in fancy and piece dyes, from the finest to the coarsest goods; familiar with all kinds of machinery; has exceptionally good references; could take a position at once. 3705, Textile World Record Boston, Mass.

Superintendent or Designer in a Woolen Mill. Worked on all classes of worsted goods. Familiar with all makes of machinery. Good reference. 50 years of age, married. 4673, Textile World Record, Boston, Mass.

Superintendent and Designer; worked on worsteds, fancy cassimeres, worsted dress goods, thibets, overcoatings, kerseys and broadcloths; familiar with all kinds of machinery; will not go West, South or Canada; 47 years of age, married; good reference. 4232, Textile World Record, Boston, Mass.

Superintendent of woolen mill; was in business for himself for years; he is now open for a position; age 52, married; first class references from commission houses. 3227, Textile World Record, Boston, Mass.

Superintendent or assistant of a woolen or worsted yarn mill; worked on fancy and piece dye worsteds, men's wear, thibets and overcoatings; has a good knowledge of blending stock, also a good knowledge of designing; familiar with all makes of woolen and worsted machinery, American and foreign; 26 years of age, married; good reference. 4593, Textile World Record, Boston, Mass.

CARDERS.

Overseer of Cotton Carding or superintendent of a small mill; worked on all classes of plain cotton goods; familiar with the Whitin, Providence, old and new Mason, Lowell, Howard & Bullough makes of machinery; will not go to Vt., Pa., N. Y., N. J., West, South or Canada; 36 years of age, married, American; good reference. 4340, Textile World Record, Boston, Mass.

Overseer of Carding in small mill or second hand in large; worked on all kinds of goods and all grades of yarn from 1 to 6 run, all wool and low grade shoddy mixes; familiar with Davis & Furber and English makes of cards; will not go to Pa., N. Y., N. J., West, South or Canada; 28 years of age, married; good reference. 3880, Textile World Record, Boston, Mass.

Overseer of Woolen Carding; worked on all grades of high and low stock; familiar with all kinds of cards; two sewers and a pattern weaver in the family; will not go to Me. or N. H.; 40 years of age, married; good reference. 4223, Textile World Record, Boston, Mass.

Overseer of Woolen Carding; position wanted by a man 47 years of age, American, married; has handled all kinds of stock, cotton, wool and shoddy mixes on yarns from 1 to 6 run; has been employed for a number of years in leading mills; first class reference. 3815, Textile World Record, Boston, Mass.

Overseer of Woolen or worsted carding; would accept a position as superintendent of a felt mill; understands the business in every detail; worked on all kinds of stock and all makes of cards; first class reference; will go any place for a good position; 45 years of age, American, married. 3470, Textile World Record, Boston, Mass.

Overseer of Carding or spinning in a cotton yarn mill; worked on combed, Egyptian, Sea Island, peeler, Georgia and American cotton; all makes of carding and combing machinery; will not go South or Canada; good reference; 32 years of age, single. 4132, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Worked on goods made from wool shoddy and cotton mixes on D. & F., Lombard, Cleveland, Smith cards; prefer New England states, good reference, 50 years of age, married. 4695 Textile World Record, Boston, Mass.

Overseer of Carding in cotton mill; position wanted by a man 39 years of age, single; worked on all kinds of cotton goods, Sea Island, combed and carded, from 24s up to 150s; familiar with American and English carding machinery; good references. 3941, Textile World Record, Boston, Mass.

Overseer of Woolen Carding, or good second hand position; worked on all classes of goods; familiar with American, Davis & Furber and Lombard makes of machinery; will not go to Pennsylvania or South, but prefers New England; good reference; 54 years of age, married. 4191, Textile World Record, Boston, Mass.

Second Hand of Carding; worked on fine to coarse work; familiar with the Lowell fly frame, Providence and many other machines; 35 years of age, single; good reference; will not go West or South. 4183, Textile World Record, Boston, Mass.

Overseer of Cotton Carding; worked on coarse and fine yarns, print cloth and dress goods; familiar with Howard & Bullough, Providence, Woonsocket, Saco & Pettee, Mason & Whitin makes of machinery; 35 years of age, married; good reference. 4186, Textile World Record, Boston, Mass.

Overseer of Carding and spinning or woolen carding and spinning. Might accept a position as second hand in a large mill. 38 years of age. Worked on cassimeres, dress goods, overcoatings, horse and bed blankets. Familiar with the D. & F., Lumbard, Furbush, Cleveland and Platt mules. Will not go West, South or Canada. Good reference. 4582, Textile World Record, Boston, Mass.

Overseer of Carding or spinning in a cotton mill; position wanted by a man 39 years of age, married, American; worked on white and colored goods; familiar with Whitin and Lowell machines; will not go to Canada, New York, New Jersey or New England States; good references. 3997, Textile World Record, Boston, Mass.

FINISHERS.

Overseer of Finishing or second hand; worked on broadcloths, worsteds and ladies' dress goods; familiar with Parks & Woolson, and Gessner makes of machines; will not go to Pa., N. J., West, South or Canada; 34 years of age, American; good reference. 4339, Textile World Record, Boston, Mass.

Overseer of Finishing, or second hand; worked on woolen and worsted broadcloths, carriage cloths, sackings, cloakings and cheap cassimeres; familiar with Parks & Woolson, Davis & Furber, and other makes of machinery; will not go West, South or Canada; 34 years of age, married; good reference. 4220, Textile World Record, Boston, Mass.

Overseer of Finishing or charge of shears; worked on woolens and worsteds; familiar with all kinds of machinery; 49 years of age, married; good reference. 4230, Textile World Record, Boston, Mass.

Beetle Finisher; worked on all kinds of cotton goods, plain and fancy; familiar with the Phoenix make of machines, also the Granger; will go any place for a good position; 40 years of age, married; good reference. 4222, Textile World Record, Boston, Mass.

Overseer of Finishing or second hand; worked on broad cloths, kerseys, thibets, dress goods, sackings, cassimeres, covert cloth, and other classes of face goods, granites doe skins, etc.; familiar with all makes of woolen finishing machinery; 28 years of age; good reference. 4245, Textile World Record, Boston, Mass.

Overseer of Wet Finishing or second hand in fulling room. Worked on low and high grade woolens and worsteds. Good reference. 28 years of age, single. 4680, Textile World Record, Boston, Mass.

Overseer of Finishing, wet finisher or general second hand in a woolen mill; familiar with woolens and worsteds, cotton worsteds, cotton mixes, thibets and steam finished goods; also all makes of finishing machinery; will accept a position most any place; 28 years of age good reference. 4602, Textile World Record, Boston, Mass.

Overseer of Finishing, second hand or finished percher; worked on broadcloths, kerseys, thibets, sackings, venetians, cassimeres, unions, cotton mixes, dress goods and worsteds; understands all makes of finishing machinery; prefers a position in the New England States. 4611, Textile World Record, Boston, Mass.

Overseer of Finishing, overseer of burling and sewing or finished percher. 30 years of age, married. Worked on wool and worsted piece dyes. Familiar with all makes of finishing machinery. Good reference. 4588, Textile World Record, Boston, Mass.

Overseer of Woolen Finishing from loom to case; 50 years of age, married; worked on all kinds of worsted and woolen goods, particularly face finished high lustre woolens; familiar with all kinds of finishing machinery; will not go West, South or Canada; good reference. 4564, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on wool, cotton and shoddy, fancy cassimeres, kerseys, meltons, dress goods, piece dyes, carriage and uniform cloth; familiar with all kinds of machinery; 55 years of age, married; good reference. 4213, Textile World Record, Boston, Mass.

Overseer of Beetling Department; position wasted by a man 43 years of age, married, Irish; has had ten years' experience on cotton goods in this country, 12 years' experience on linen goods in Ireland; has worked on cotton goods of all counts from 67 by 72 to 96 by 32, also handled all kinds of beetling machines; will not go South or Canada; good reference. 3807, Textile World Record, Boston, Mass.

Overseer of Woolen and Worsted Finishing. Worked on piece dyes, worsteds, cassimeres, cross dyes, carriage cloths, face finished goods and blankets. Familiar with all makes of finishing machinery. Prefers the Middle West. Good reference. 36 years of age, married. 4670, Textile World Record, Boston, Mass.

KNITTERS.

Overseer of Hosiery Knitting or superintendent; worked on cotton, worsted and all grades of wool; familiar with the Mayo, Jenks, Boss, Huse, Wildman, Scott & Williams and Boulton makes of machinery; will not go South; 44 years of age, married; good reference. 4361, Textile World Record, Boston, Mass.

Superintendent of a knitting mill, or assistant in large mill; worked on men's and women's ribbed goods and men's flat goods; familiar with all kinds of sewing machines used in knitting mills and clothing factories; Scott & Williams, Wildman, Nye & Tredick, Crane, Esty and Branson knitting machines; 30 years of age, married; will not go to R. I. or N. J.; good reference. 4185, Textile World Record, Boston, Mass.

Second Hand in Knitting Mill; position wanted by a man 21 years of age, American; worked on all kinds of goods on latch needle machines; familiar with the following makes of knitting machines: Nye & Tredick, McMichael & Wildman, Scott & Williams, H. Brinton & Co., Stafford & Holt; could take a position at two weeks' notice; good references. 3975, Textile World Record, Boston, Mass.

Knitting Machine Fixer; worked on lisle, mercerized, woolen and cotton goods; familiar with the Geo. D. Mayo, Acme, Jenckes, looping machines and ribbers; will not go to R. I., Me., Vt., N. J., West or South; 23 years of age, single; good reference. 4225, Textile World Record, Boston, Mass.

Superintendent of an Underwear Mill or overseer of finishing in a large plant. Worked on ladies' underwear and novelty. Familiar with all makes of finishing machinery and expert on Merrow machines. Will not go West, South or Canada. 45 years of age, married. 4674, Textile World Record, Boston, Mass.

Superintendent of Knitting, or overseer of large knitting or seaming room; worked on nearly all kinds of knit goods; familiar with Crane's Twist Drill, Tompkins, Nye & Tredick, and several kinds of sewing machines used in a knitting mill; 40 years of age, married; good references; has had 25 years of constant experience in the knitting business. 4178, Textile World Record, Boston, Mass.

Fixer in a Hosiery Mill. Worked on Mayo, Acme, Wildman ribbers and loopers and ladies', gents' and infants' cotton, merino and worsted hosiery. 22 years of age, single. Good reference. 4653, Textile World Record, Boston, Mass.

Overseer or assistant superintendent of hosiery knitting; have worked on all grades of work from coarse wool to the finest mercerized cotton; familiar with Standard, Acme, Mayo, Hemphill, Scott & Williams and Brinton makes of machines; 35 years of age, married; good reference. 4155, Textile World Record, Boston, Mass.

Superintendent or Assistant Superintendent of a woolen or knitting mill. Has manufactured woolen goods, blankets, flannels, shirtings, hosiery and yarns. Familiar with Crompton & Knowles looms, D. & F. carding and spinning machinery and Branson knitters. Will not go to Maine, New Hampshire, Vermont or Canada. 32 years of age, married. Good reference. 4686, Textile World Record, Boston, Mass.

SPINNERS.

Overseer of Ring Spinning, warping, winding, beaming or twisting; worked on bed spreads, sheetings, prints, taffeta, fire hose and automobile tire fabric; familiar with all makes of machinery; will not go to Canada; 27 years of age, married; good reference. 4344, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on all classes of woolens, wool and shoddy, cotton and shoddy mix from 1 to 8 run; familiar with Davis & Furber and Johnson & Bassett machines; will go anywhere for a good position; 41 years of age, married, American; good reference. 4346, Textile World Record, Boston, Mass.

Overseer of the Mule Room or frame spinning; worked on all kinds of goods; familiar with Mason and English mules; will not go to Me., N. H., Vt., Pa., West, South or Canada; 50 years of age, married; good reference. 4353, Textile World Record, Boston, Mass.

Overseer of Mule Spinning or frames and mules; worked on both fine and coarse goods, but chiefly fine; familiar with English and American makes of machinery; will not go West, or South; 39 years of age, married; good reference. 4356, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on ladies' dress goods; familiar with the Davis & Furber machines; will not go to Pa., N. Y., N. J., West, South or Canada; 49 years of age, married; good reference. 4362, Textile World Record, Boston, Mass.

Overseer of Spinning; worked on wool, silk and cotton mixes from one to ten run; familiar with D. & F., J. & B., Paul, English, and Bancroft mules; will not go to Me., N. H., Vt., Pa., West, South, or Canada; 42 years of age, married; good reference. 4342, Textile World Record, Boston, Mass.

Overseer of Ring Spinning, spooling, warping, slashing, twisting, cone-winding, reeling, etc.; worked on all kinds of yarn, numbers ranging from 4s to 120s, Egyptian and American cotton, also colored work; familiar with all makes of American ring frames, twisters, beam or ball warpers. Broadbent's, Foster's, Payne's, Camless, the new Universal Cone Winders, Skein Spoolers, etc.; will not go to Vermont, Pennsylvania, New York, New Jersey, West, South or Canada; 32 years of age, married; has two second hands of ring spinning in family; good reference. 4171, Textile World Record, Boston, Mass.

Overseer of Ring Spinning or second hand; worked on sheetings, shirtings, warp and filling; familiar with the Whitin, Fales & Jenks machines; 31 years of age, married; wife is a spooler; good reference. 4635, Textile World Record, Boston, Mass.

Overseer of Mule Spinning, or mule and ring spinning in a cotton mill; worked on threads, warps, filling, hosiery yarns and counts from 6s to 180s, Egyptian and American cotton; familiar with English and American mules; wants a position in the North; good reference; 40 years of age, married. 4624, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning. Familiar with the D. & F. machines. Worked on all kinds of stock, wool, cotton and shoddy mixes. Would prefer a position in the N. E. States. Good reference. 34 years of age, married. 4598, Textile World Record, Boston, Mass.

Cutting Machines

Every Textile Manufacturer has his own special problems. If these problems relate to cutting cloth, paper, felt, &c., in any way, shape or form we are always glad to volunteer our help in solving them.

61 Poplar Street
Brooklyn, N. Y.

Cameron Machine Co.

Special Textile
Machine Designers

COTTON WEAVERS.

Overseer of Dressing, spooling, winding or twisting; worked on dress goods, resist dyes, fancy worsteds, fancy cottons, woolen suitings and overcoatings; familiar with almost all kinds of dressing, spooling, twisting and winding machinery; will not go to Pa., West, South or Canada; 30 years of age, married; good reference. 4364, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on marseilles, crochet, satin and dimity quilts; familiar with Crompton & Knowles looms; 37 years of age, married, American; good reference. 4348, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving, second hand, or overseer of cloth room; worked on sateens, twills, sheetings, prints, muslins and all kinds of plain goods; familiar with Draper, Colvin and Whitin looms; prefers New England, but will go any place for a good position; 45 years of age, married; good reference. 4621, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; worked on plain sateens, crepe, fancy shirtings, Bedford cord, checks, lappettes, lenos and coarse and fine goods; familiar with all makes of looms; will not go West or South; good reference; 28 years of age, married. 4120, Textile World Record, Boston, Mass.

WOOLEN WEAVERS.

Woolen or worsted weaving mill superintendent; worked on cassimeres, cheviots, kerseys, silk mixtures, cotton warp, cotton and shoddy mixtures, worsted and cotton mixtures, cotton worsteds and worsteds; familiar with all kinds of machinery; will not go South, or Canada; 50 years of age, married; good reference. 4359, Textile World Record, Boston, Mass.

Overseer of Weaving, weaving and dressing, weaving and designing or burling and mending; worked on all classes of worsteds and woolens, also unions of any description or grade; familiar with the Crompton, Knowles, Crompton & Thayer, fancy and plain and Davis & Furber looms; 35 years of age, married; good reference. 4360, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on all kinds of woolen goods; familiar with Crompton & Knowles, Gilbert and Stafford looms; also a good knowledge of others; will not go South; 47 years of age, married; good reference. 4363, Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in a good mill; worked on all kinds of woolens and worsteds, plain and fancy; familiar with Crompton, Knowles, Thayer and fancy looms; will not go to Vt., West, South or Canada; 31 years of age, married; good reference. 4349, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on fancy worsteds, cotton worsteds, men's wear, and dress goods of all kinds; familiar with Crompton & Knowles looms; will go anywhere for a good position; 31 years of age, single. 4218, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on woolens, worsteds and plain and fancy dress goods; can handle burling, sewing, specking and drawing-in; will not go South, or to Canada; 44 years of age, married; good reference. 4216, Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Weaving. Worked on wool and worsted, also cotton worsted goods; familiar with Crompton & Knowles looms, good reference, 36 years of age, married, will not go to Canada. 4119 Textile World Record, Boston, Mass.

WOOLEN WEAVERS.

Overseer of Weaving, second hand in the finishing department or cloth inspector. Worked on all classes of woolen goods and understands all makes of finishing machinery. Prefers N. E. States. 39 years of age, married. Good reference. 4655, Textile World Record, Boston, Mass.

Overseer of Woolen, Worsted or Cotton Weaving. Worked on men's wear, ladies' dress goods, wool, silk or cotton; have been employed in one of the largest mills in N. E.; first class reference as to character and ability, 50 years of age, married. 4103 Textile World Record Boston, Mass.

Overseer of Woolen or Worsted Weaving. Worked on woolen dress goods, men's wear, cotton worsteds and fancy worsteds on Crompton & Knowles looms, good reference, 35 years of age, married. 4698 Textile World Record, Boston, Mass.

Overseer of Woolen Weaving. Worked on woolen dress goods, men's wear, worsted suitings, overcoatings, on Crompton & Knowles looms; 34 years of age, married, good reference. 4100 Textile World Record, Boston, Mass.

Overseer of Woolen or worsted weaving. Worked on worsteds, cotton worsteds, woolens and dress goods. Crompton & Knowles looms. Will not go West, South or Canada. Good reference. 46 years of age, married. 4642, Textile World Record, Boston, Mass.

Overseer of Woolen or worsted weaving in a small or loom fixer in a large mill. Worked on worsted and woolen goods. Familiar with the Knowles loom. Good reference. 38 years of age, married. 4600, Textile World Record, Boston, Mass.

Overseer of Weaving; position wanted by a man 42 years of age, American, married; worked on all kinds of woolen and worsted goods; familiar with Crompton & Knowles and Crompton & Thayer and Jacquard looms; first class recommendation. 3694, Textile World Record, Boston, Mass.

DESIGNERS.

Wool and Worsted Designer, assistant superintendent in a large or superintendent in a small mill; worked on high grade woolen suitings, cheviots, worsted suitings and trouserings, woolen and worsted dress goods, overcoatings, cotton mixes, etc.; will not go South; 29 years of age; good reference. 4352, Textile World Record, Boston, Mass.

Designer, Assistant or superintendent; worked on woolens, cotton worsteds, raincloths, coverts, panamas, unions and very fine worsteds; familiar with all makes of machinery used in worsted mills, spoolers, winders, dressers, twisters and Crompton & Knowles looms; will not go South, Canada or west of Chicago; 44 years of age, married; good reference. 4144, Textile World Record, Boston, Mass.

Designer; worked on wool and worsted goods, overcoatings, piece dyes, cotton and worsted serges, resists and manipulated fabrics; will not go West, South or Canada; good reference; 34 years of age, married. 4128, Textile World Record, Boston, Mass.

Designer in a Small or assistant in a large mill. Worked on fancy worsteds, cotton worsteds, cassimeres, piece and cross dyes. Familiar with Crompton & Knowles looms. Will not go West, South or Canada. Would prefer a position in Massachusetts, Rhode Island or Connecticut. Good reference. 25 years of age. 4678, Textile World Record, Boston, Mass.

Superintendent and Designer; position wanted by a man 38 years of age; married; worked on men's wear fancy worsteds, cotton worsteds, overcoatings and dress goods; good references. 3056, Textile World Record, Boston, Mass.

Designer, Assistant Designer or overseer of weaving. Has worked on the best classes of tweeds, overcoatings, wool and worsteds. 39 years of age, married. Two workers in the family, Scotch. Good reference. 4625, Textile World Record, Boston, Mass.

DYERS.

Boss Dyer and Bleacher; worked on all grades of underwear, roll dyeing, and bleaching, wool and cotton yarns, and raw stock; familiar with the Rodney Hunt roll dyeing, washing and bleaching machines, Klauder-Weldon dyeing machines, Murphy boiling out kier and dyeing machines; will not go to Mass., Me., West, or South; prefers N. Y., or Pa.; 29 years of age, married; good reference. 4354, Textile World Record, Boston, Mass.

Overseer of Dyeing, bleaching or finishing; worked on woolens, worsteds and all classes of cotton goods, both knitted and woven; 40 years of age, married; good reference. 4358, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on wool, cotton and union goods in all its branches; familiar with all makes of machinery; 32 years of age, married; will go anywhere for a good position; good reference. 4146, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on piece dyes, wool, worsted and cotton yarns, wool, cotton raw stock. 35 years of age, married. Good reference. 4661. Textile World Record, Boston, Mass.

Boss Dyer; worked on cotton and wool and mixed stock, yarns and piece goods, hosiery, slubbing and raw stock; also scouring of wool; first class recommendations; 28 years of age, single, English. 3327, Textile World Record, Boston, Mass.

Overseer of Dyeing, mercerizing or finishing or superintendent of a bleach and dye works. Worked on cotton and wool piece dyes, skein dyeing and warps; also raw stock. Good reference. 34 years of age, married. 4647, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on resist colors, develop shades in cotton worsted, wool; stock dyeing and yarns. Good reference. 40 years of age, married. 4679, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on all classes of woolen goods, cassimeres and ladies' dress goods. Strong on unions. 50 years of age, married. Could take a position at once. N. E. States only. 4654, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on worsted yarns, piece dyes, raw stock and slubbing. Will not go West or South. Good reference. 41 years of age, married. 4650, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on worsted and cotton yarns, all kinds of worsted, woolen and union piece dyes, rain cloths, raw stock, rags, resists, and yarns; will not go to Canada; 30 years of age; good reference. 4246, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on cassimeres, cheviots, kerseys, broad cloths, meltons, worsteds in dress goods and men's wear; familiar with wood, alizarine, aniline, and union colors; indigoes on wool, cotton, shoddy, silk noils; has had a wide experience on piece dyeing, men's wear and worsteds; 50 years of age, married; good reference. 4135, Textile World Record, Boston, Mass.

Promotion for Textile Workers

The most practical, surest, and quickest way in the world for ambitious textile workers to secure promotion is offered by an institution through whose assistance thousands of men have already advanced to better positions and larger salaries. They have done this in their own homes, in their spare time, and at an insignificant cost. We will cheerfully explain, free of charge, how we can adapt our plan to **YOUR** personal needs and income if you will write us today, stating the position you would like to secure.

INTERNATIONAL CORRESPONDENCE SCHOOLS, Box 882, Scranton, Pa.

MISCELLANEOUS

Electrical Engineer; has worked for gas and electric concerns; familiar with the Baldwin and Wood engine, general electric generator, general electric switch board, Manger, Lewis and George & Forster; will not go to Me., N. H., Vt., Pa., N. Y., N. J., West, South, or Canada; 25 years of age; good reference. 4347, Textile World Record, Boston, Mass.

Assistant or Mechanical Superintendent, supervising engineer or master mechanic; worked on plain sheetings, denims, all jute and flax twines and carpet yarns; graduate of Mass. Institute of Technology; familiar with all makes of machinery; will not go West, or South; 42 years of age, married; good reference. 4350, Textile World Record, Boston, Mass.

Overseer of Burling or sewing, second hand, or good perch position; worked on piece dyes, fancy worsteds, etc.; will not go to Canada; 43 years of age; good reference. 4341, Textile World Record, Boston, Mass.

Overseer of Cloth Room; has handled most every kind of goods except duck; familiar with all kinds of machinery in the business; will not go to R. I., Conn., Vt., Pa., N. J., N. Y., West, South, or Canada: good reference; 50 years of age, married, American. 4343, Textile World Record, Boston, Mass.

Loom Fixer; worked on raw silk and soft silk goods; familiar with box and plain looms; 25 years of age, single. 4357, Textile World Record, Boston, Mass.

Overseer of Spooling, warping, twisting, slashing, beaming, or a good second hand position; worked on coarse and fine counts, and all classes of cotton goods; familiar with the Lowell, Draper, Howard & Bullough, Entwistle, Foster, Universal, Easton & Burnham and open and close wind machines; will go anywhere for a good position; 30 years of age, married, English; good reference. 3380, Textile World Record, Boston, Mass.

Overseer of Spooling, warping or slashing; worked on plain and fancy goods and 30s to 100s; familiar with the Draper, Whitin, Lowell, Entwistle, Howard & Bullough makes of machinery; will not go to Pa., N. Y., N. J., West, South or Canada; 26 years of age, married; good reference. 4221, Textile World Record, Boston, Mass.

Overseer of Combing; position wanted by a man 27 years of age, married, English; has worked on men's wear and fancy dress goods; is familiar with Noble combs of all makes, Crompton, Taylor, Wadsworth, Smith and Prince; good references. 3617, Textile World Record, Boston, Mass.

Overseer of Worsted Combing or carding and combing. Worked on 1/4, 3/8 and 1/2 blood, fine Australian, mohair, camel hair and English luster wool; Taylor & Wordsworth & Co., Hoyle & Preston, Crompton & Knowles' combs and all kinds of gill boxes; 38 years of age, married, good reference. 4115 Textile World Record, Boston, Mass.

Overseer of Spooling, twisting and skein winding. Position wanted by a man 23 years of age, single. Worked on woolens, worsteds and cotton worsteds. Familiar with the Worcester Warp Compressing Company's spoolers, Davis & Furber and Johnson & Bassett machines. Would prefer a position in Mass., R. I., or Conn. Good reference. 4569, Textile World Record, Boston, Mass.

Chief Engineer and electrician, or master mechanic where stress is laid on a thorough knowledge of the power plant; familiar with engines, boilers, water wheels, electrical machinery, etc; 40 years of age, married; good reference. 4143, Textile World Record, Boston, Mass.

Overseer or Second Hand of twisting, reeling, doubling, etc.; worked on all kinds of threads; familiar with twisters, flyer and ring, butt braiders, all kinds of window spoolers and doublers; good reference; 30 years of age, married. 4182, Textile World Record, Boston, Mass.

Master Mechanic for cotton or woolen mill; familiar with steam and electric power and all machinery connected with either of the above; good reference; 31 years of age, married. 4633, Textile World Record, Boston, Mass.

The man who buys
Wyandotte Textile Soda
makes no mistake

We are in constant receipt of letters from among the large as well as from the small scourers of wool and finished cloth, and all have good words for

Wyandotte Textile Soda

If you, Mr. Reader, are not using this material in your establishment, can you give good reasons for not doing so?

None Genuine except with card bearing this Trade Mark

In every package.

The use of Wyandotte Textile Soda is not an added expense. It does not give an inferior grade of work. But, on the contrary, it does give a much better grade of work. It does retain in the wool fibre all its natural properties. It does give to the finished cloth that quality so much desired by all.

If we can't show you, it costs you nothing.

The J. B. Ford Co., Wyandotte, Mich.

Sole Manufacturers

THIS SODA HAS BEEN AWARDED THE HIGHEST PRIZE WHEREVER EXHIBITED.

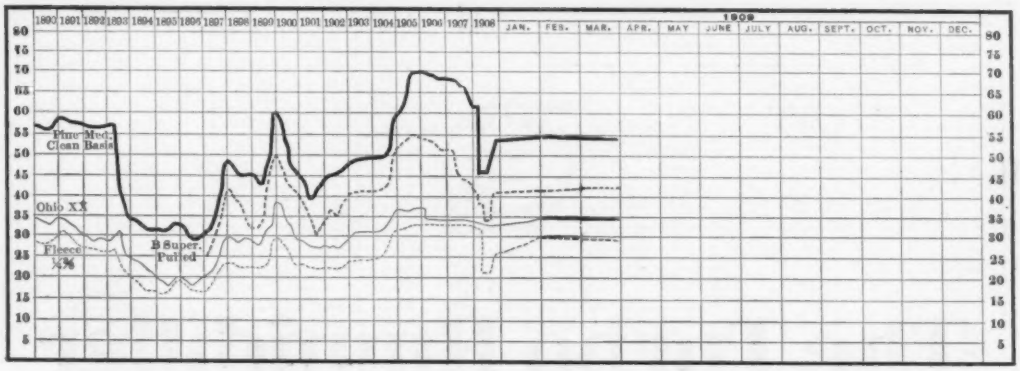

CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

Eastern wool warehouses contain very small stocks for sale. This fact in conjunction with the tariff agitation has restricted the volume of business, although prices have been firmly maintained. Activity and advancing prices have been the features in foreign markets. There is a belief prevailing throughout the trade that an advance in wool prices will take place as soon as the tariff question is disposed of. This is based on the statistical position of the staple. In this country the supply is far below the requirements of the mills, while abroad the clip has not increased in proportion to the increase in the demand. The last London sales competition was active and prices hardened under the pressure for the desirable lots, especially those suited for America. Dealers do not look for any material advance until the uncertainty regarding the tariff is removed. This will not occur for two or three months, and in the meantime a new clip will come on the market. The goods market is draggy and this cannot fail to have an influence on wool prices.

*New Hampshire, Ashuelot. E. C. Robertson and W. F. Robertson of Hinsdale, N. H., who recently purchased the Ashuelot Warp Co., will erect a paper mill on the land adjoining. The cotton mill will shortly be for rent, with power.

New Hampshire, Claremont. Employes of the Monadnock Mills have been notified that they will receive an increase of 10 per cent. in wages beginning April 5.

New Hampshire, Hinsdale. Within a short time the manufacturing property of the Haile & Frost Mfg. Co. will be sold at auction. The mill has been shut down for about a year.

New Jersey, Bayonne. It is stated that Albert Herbert, the new president of "Leolastic," is the leading promoter of the proposed merger of narrow fabric manufacturers.

New Jersey, Paterson. The Reliable Winding & Warping Co. has been incorporated with capital stock of $5,000, and has located an office at rooms 13 and 14 Paterson Savings Institution. F. McCran is the agent in charge.

New Jersey, Paterson. I. R. Cohen has made arrangements to remove his branch plant from the Barnert Mills to the new Reinhardt Mills on the completion of the latter.

New Jersey, Paterson. Space in the new Reinhardt Mill has been leased by Schuh & Michels Mfg. Co., manufacturers of tie silks on 36 looms. The new quarters will give them increased facilities, and it is understood additional machinery will be added.

New Jersey, Paterson. The Greaf Hatband Mfg. Co. will shortly remove to the new Reinhardt mill on Clay St.

*New York, Brooklyn. Reports greatly exaggerated the damage to the Chelsea Fiber Mills by the recent fire. Less than $1,000 will be required to make repairs.

New York, Fulton. It is reported that a new worsted mill will be started here by a New Jersey manufacturer and a former employe of the American Woolen Co.

New York, Stuyvesant Falls. The name of the Collins Bag Co. has been changed to Langdon Mfg. Co.

New York, Trumansburg. Reports that John Hartley, who recently purchased the Electric Fittings Co.'s plant, would install 75 looms in the building for manufacturing silk goods, are denied by Mr. Hartley. He states the building will not be used for a silk plant.

*North Carolina, Bessemer City. The sale of the Southern Cotton Mills by the receiver, Caesar Cone, to the Slater Mfg. Co. for $110,500 has been confirmed by the court. The new company advises that details of organization are not yet completed.

North Carolina, Bryson City. A charter has been granted the Franklin Mfg. and Developing Co., and it is understood that they contemplate the erection of a cotton mill. The capital stock is $100,000.

The Turbo Humidifier

Will be on exhibition at

Mechanics Building, Boston

April 26th to May 1st, 1909

We invite you to inspect it as it appears under actual working conditions. Representatives will be present to explain it in detail. By arrangement with the management, the coupon below, properly signed, may be used for admission.

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And Charge to **THE G. M. PARKS COMPANY**

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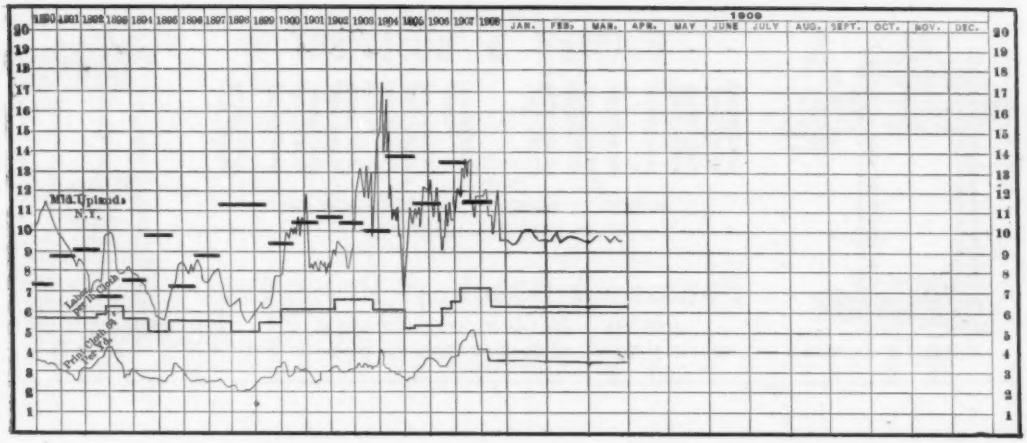

CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

The Cotton Market.

The conflicting factors in the cotton market have been so well balanced that prices have moved within narrow limits. Trade is poor abroad. Lancashire spinners are agitating the question of short time owing to the depression in business. Consumption is going on, however, at a high rate in both foreign and domestic mills. The movement into sight, indicating a crop of 13,500,000 bales, is estimated by the "Chronicle" for the period from Sept. 1 to March 26 for a series of years as follows:

1908-09, Mar. 26	.....	11,568,222 bales.
1907-08, Mar. 27	.....	9,746,957 bales.
1906-07, Mar. 29	.....	11,783,485 bales.
1905-06, Mar. 30	.....	9,189,787 bales.
1904-05, Mar. 31	.....	10,420,033 bales.

The world's visible supply on March 26 is estimated by the same authority at 5,106,071 bales, as compared with 4,466,497 bales on corresponding date in 1908, 5,371,102 bales in 1907, and 4,659,871 bales in 1906. This is a gain of 639,574 bales over 1908, a decrease of 265,031 bales from 1907, and a gain of 446,200 bales over 1906.

*North Carolina, High Point. Interest has been revived in the proposed cotton mill which F. M. and W. P. Pickett of this place are promoting. Over a year ago these men, with W. H. Ragon, secured subscription to the amount of about $50,000 for a $200,000 knitting and cotton mill company.

Massachusetts, Lowell. At a meeting of the stockholders of the Belvidere Woolen Mfg. Co. the directors were given authority to sell the plant if they thought advisable. One plant of this concern is being operated by the Stirling Mills and the other plant is shut down.

Massachusetts, South Hadley Falls. It has been decided to increase the capital stock of the Hadley Mills from $300,000 to $400,000. The increase will be used for working capital.

*Massachusetts, Uxbridge. L. Bachmann & Co. are not in a position to give definite information as to what they are going to do with the woolen mill of J. R. & C. W. Scott, recently purchased by them

*Mississippi, Columbus. The new owners of the manufacturing property of the Columbus Comfort & Mfg. Co. will manufacture mattress springs. The sale of this property to the new owners was given recently.

New Jersey, Paterson. It is reported that Rabinowitz & Jacobs, trading as the Crescent Silk Co., have dissolved partnership and will make an equal division of the machinery. They operate 80 looms on broad silks in the Harding Mill.

New Jersey, Paterson. Five deeds conveying to the National Silk Dyeing Co. real estate of the five dyeing concerns which recently combined have been filed in the county clerk's office. The concerns which have merged are Auger & Simon, Robert Gaede, Emil Gerring, and Knipsacher & Maas.

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SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
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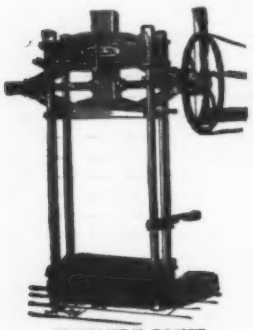

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Hydraulic or Knuckle Joint
Any Size .. Any Power

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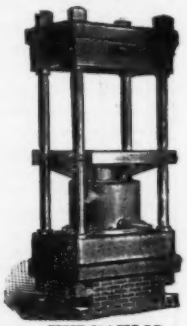
338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.



HYDRAULIC.

OUR PRICE for PICKERS

THAT SATISFY THE BEST WEAVERS.

We offer a leather tail loom picker in one size and one grade at a particularly attractive price, considering its quality. The size and style is that which is in most common use and the grade is first-class belt leather. The lifts of these pickers are carefully selected and only those which are firm and of the best quality are used. The pickers are thoroughly cemented and solidly pressed. They will not only wear until they wear out, but the firmness of the leather of which they are made causes the pickers to wear more slowly than if made of inferior material.

G TRADE MARK

SAMPLES AND PRICES ON APPLICATION TO
GARLAND MFG. CO., SACO, MAINE
(Formerly Loom Picker Co., Biddeford, Maine)

A Rigid Examination Reveals No Defects in the

CROSBY SPRING-SAVE GLOBE AND ANGLE VALVE.

NO BETTER VALVE CAN BE MADE.

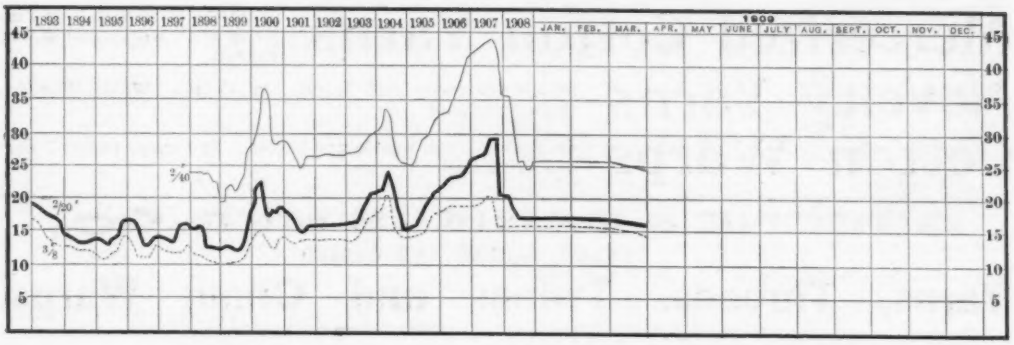
All Working Parts Renewable Without Removal from Piping. ALL PARTS INTERCHANGEABLE. THEY have a full opening through them. WHEN COMPLETED ARE TESTED under more than 400 lbs. pressure. We guarantee them NOT TO LEAK AT HIGH PRESSURES. MADE IN BRASS AND IRON in the various styles furnished to the trade. Try One or More Valves and BE CONVINCED.

CROSBY STEAM GAGE AND VALVE CO.

Stores: BOSTON, NEW YORK, CHICAGO, LONDON.

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

This market has been in a very unsettled condition recently owing to slack demand for yarn. The tariff agitation has upset business generally and buyers are waiting for trade to take some definite turn. There has been some buying of cotton yarn, but sales have been on a very low basis and we believe the buying was prompted more from the desire of manufacturers to secure low priced yarn, rather than from any actual need they had for the yarn.

Southern spinners have been making their usual mistake of running their plants full time irrespective of the fact that they were producing more yarn than was being used. Prices have reached a point where spinners are forced to consider curtailment of production and a general curtailment would have a tendency to harden prices on yarn.

Prices today are about as follows:

Eastern Cops.

6s	16½
8s	16½
10s	17
14s	18
16s	18½
18s	19
20s	19½
22s	20
24s	20½
26s	21
30s	21½
34s	22½
36s	23½
40s	24½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	19
14s	19½
18s	20½
20s	21
24s	22
26s	22½
30s	23½
36s	27
40s	28
45s	32
50s	35
55s	38
60s	44

Eastern Two-Ply Warps, Carded Peeler.

2/30s	23½
2/36s	27
2/40s	28
2/45s	32
2/50s	35
2/60s	44

Egyptian Weaving Yarns.

Single Skeins Combed.

30s	35
36s	37
40s	38
45s	40
50s	45
55s	48
60s	52
70s	57

The Philadelphia Market.

7s and coarser	15½
8s and 9s	15¾
10s	16
12s	16½
14s	17

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

COTTON WARPS

HOUSATONIC, MASS. 4s to 60s.

J. TOWNSEND WALKER

The Spinners Representative

All Nos. and Descriptions of Cotton Yarn Sold Direct to the Trade

ACCOUNTS SOLICITED.

P. O. Box 659
Banigan Building, Room 528 PROVIDENCE, R. I.
Telephone Connection.

C. MOORE & CO.,

Manufacturers of

TWINES, THREADS AND YARNS

Jacquard Harness Twines of all kinds on hand and made to order.

S. W. Cor. Fifth and Market Sts., Phila.

MARYLAND WOOL AND COTTON EXCHANGE

906-908 Streeper St., Baltimore, Md.

High Grade Hosiery and Weaving Yarns all colors.

Operating Well Equipped Bleachery, Dyehouse, Spool, Cone and Twist Mill.

EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

MASON MANUFACTURING CO., Inc.

Makers of

Machinery for Braiding and Finishing Sash Cord.

15 1-2 Chardon Street BOSTON, MASS.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

16s	17½
18s	18
20s	18½
22s	19
24s	19½
26s	20
30s	20½
40s	26
50s	34

Southern high grade mule yarn:—

Cones.

10s	18
12s	18½
14s	19
16s	19¾
18s	20¼
20s and 22s	20¾-21¼
24s	21¾

Southern frame yarn, lower grades:—

6s and 8s	15
10s	15½

Eastern cones (high grade quality):—

10s	19
12s	19½
14s	20
16s	20¾
18s	21¼
20s and 22s	21¾-22½

Skein yarn (mostly Southern):—

4s and 8s soft	14½-15
10s and 12s	15-15½
14s to 20s	16-17
22s	17½
10/2	15½
16/2	16½
20/2	17½
30/2	20
40/2	25
8/3	14½
7/6	15

Connecticut, New Haven. The capital stock of the Whiteknit Mills Co. has been increased from $20,000 to $35,000.

Connecticut, New London. The Local Board of Trade is in communication with an underwear manufacturer who contemplates locating a factory here.

Connecticut, South Manchester. It is reported that a new concern will occupy the upper floor of the James Trotter Bldg. on Main St. and install machinery for manufacturing worsted knitted jackets.

*North Carolina, King's Mountain. New machinery will not be installed in the Cora Cotton Mills for some months. A new building which will hold 10,000 spindles has been completed.

*Massachusetts, Lawrence. It is probable that when the plant of J. D. Armitage & Co. is removed to Fitchburg it will be known as the Arden Annex. It will be remembered that Mr. Armitage has been appointed agent of the American Woolen Co.'s Arden Mills, formerly known as the Cambridge Mills.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS
Cotton Yarns
122-124 Chestnut Street, PHILADELPHIA, PA.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns.
345 Broadway, NEW YORK.
67 Channcy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
Dry Goods Commission Merchants,
COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
DEP'T FRED'K VIETOR & ACHELIS
Cotton and Worsted Yarns
366 Broadway cor. Franklin St., NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

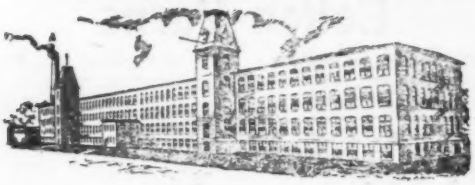
LUDWIG LITTAUER,
SUCCESSOR TO
MOELLER & LITTAUER, 109 Greene St., New York
SILK, WORSTED, YARNS COTTON AND WOOLEN MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
SILK MILL, BOONVILLE, N. Y.

High Grade Hosiery Yarn
White and Colors. All Numbers. Sewing Twines on Cones and Tubes
SPECIALTIES IN WEAVING YARN
Black and White. Double and Twist for Woolen Trade.
CANNON MILLS 53-5 Worth Street, New York
Philadelphia Office, 205-7 Chestnut St.

GRANT YARN CO.,
COMBED AND CARDED COTTON.
YARNS 40's and above.
AND
FITCHBURG, MASS. WARPS

G. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS



Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

Cotton Yarns

Jenckes Spinning Company
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

IRON GLUE

For use in covering rolls, pulleys, etc. Sticks to iron and holds covering until worn out. Saves eight times its cost in leather alone. Write for sample demonstration.

H. B. Ament, 620 Camp St., Louisville, Ky.

The Bradley Stencil Machine

Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.

Also manufacturers of **Oil** Stencil Board. Write for prices and samples.

Ballou Yarn Co.

PROVIDENCE. R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

T. H. S. CONE, Direct Selling Agent

COTTON YARNS

77 Worth Street, New York, N. Y.

Representing

Norwood Mfg. Co., Norwood, N. C.
Linn Mills Co., Landis, N. C.

Century Cotton Mills

Manufacturers of

Hosiery Yarns

Nos. 10s to 30s Sell Direct

South Boston - - - Virginia

Lowell Crayons

Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers Lowell, Mass.

Trade Mark on every box.

Authorized Capital **$100,000**
W. A. Dickel, Pres. and Treas.
Samuel Reid, Vice-Pres. and Sec'y.
I. B. Scovill Gen'l Mgr. and Supt.

INDUSTRIAL MILLS CO.

Jasper and Huntingdon Sts., Phila., Pa.
Manufacturers of
NARROW FABRICS
Special Attention Paid to Plain and Fancy
Spool Tapes and Stay Bindings.

F. W. MAURER & SONS CO.

MANUFACTURERS OF

Fringes, Tapes, Bindings, & Narrow Fabrics

Office and Factory: WAYNE AVE. and BRISTOL STS.
PHILADELPHIA

KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY.

Telephone Connection

Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

Maine, Camden. It is reported that the Mt. Battie Mfg. Co. will soon be sold. The plant has been idle for a long time.

Maryland, Elk Mills. Daniel L. Baldwin has purchased the plant of J. W. Barber & Co., Inc. The plant consists of 30 looms for manufacturing curtains, table cloths, and upholstery goods.

*Massachusetts, Boston. The Bay State Cotton Corporation has been incorporated with capital stock of $1,500,000. Charles M. Warner, 79 Wall St., New York City, is president; Myron C. Taylor, 63 Wall St., New York City, is vice president; Patrick T. Jackson, Jr., 53 State St., Boston, is treasurer.

*Massachusetts, Clinton. As stated probable in our previous report, the Brodfelt Worsted Co. is a reorganization of the Litchfield Worsted Mills. The capital stock is $30,000. Wenzel J. Brodmerkle is president, and Walter E. Felton is treasurer. They operate 21 broad looms on worsted men's wear, operating complete dyeing and finishing department.

*Massachusetts, Fall River. At a recent meeting of the directors of the Arkwright Mill it was decided not to build a new mill at present. The project will be considered at the April meeting of the Board. There is no great opposition to the enlargement of the plant.

Massachusetts, Farnumsville. The Wuskanut Mill has shut down all its broad looms as the result of a strike among the weavers.

*Massachusetts, Fitchburg. The Fitchburg Duck Co., which has succeeded to the business of the Fitchburg Duck Mills, has elected the following officers: Thomas Sheldon, president; Charles Hamblin, treasurer, and C. T. Crocker, director.

Massachusetts, Fitchburg. Attachments aggregating $7,000 have been made against the Houghton Web Co., and a committee consisting of Mayor M. Fred O'Connell, R. M. Dexter, and Herbert E. Jennison has been appointed to investigate the affairs of the company. The plant will be kept going.

Massachusetts, Lowell. Herbert Lyman, treasurer of the Merrimack Mfg. Co., states that there is no foundation for the report that the Pacific Mills is trying to secure control of the Merrimack Mfg. Co.

*Massachusetts, Lowell. It is stated that the Musketaquid Mills of this city and the Saugus Mfg. Co. of Saugus, Mass., will form the nucleus of the United States Worsted Co., and if present plans mature a new worsted mill will be built in Lowell. It is stated that the main office of the company, outside of the headquarters at New York, will be located in Lowell.

Have You Tried Tannate?

Tannate Round Belting outwears ordinary round belting from two to five times over.

Tannate Flat Belting combines in rare degree elasticity, pliability, cling and lasting wear.

Tannate Lace Leather more than holds its own in comparison with raw hide and with other tanned lace.

The proof of the pudding's in the eating; try them out.

J. E. RHOADS & SONS,

PHILADELPHIA: 12 N. Third St. NEW YORK: 40 Fulton St.
CHICAGO: 243 E. Randolph St.
Factory and Tannery, WILMINGTON, DELAWARE.

LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin Street, NEW YORK.

Flax, Hemp and Jute Line and Tow Yarns,
For Weaving Purposes.

Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines.
For Cotton, Silk, Woolen and Carpet Manufacturers.

Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS

95 Worth Street, NEW YORK

Practical Manufacturers of

YARNS, THREADS, TWINES, CORDS, ROPE

AND MILL SUPPLIES

Anything in the line you cannot get anywhere else apply to us.

William B. Charles,

Amsterdam, N. Y.

Cotton Yarns, Cotton Cloth, Silesia, Sateens,

For the Underwear Trade.

F. C. BARTON

65 Worth Street, New York

MANUFACTURERS OF

"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.

F. C. BARTON, President

65 Worth Street, New York

Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

Pocasset Worsted Company,

Worsted Yarns.

BOSTON
100 BOYLSTON STREET
TELEPHONE 19 OXFORD

NEW YORK
45 EAST 17TH STREET
UNION SQUARE

H. HODGSON, Pres. & Treas. FRED HODGSON, Gen. Mgr.

QUEENSBURY MILLS

Mohair, Lustre and Worsted Yarns

—Single and Two Ply—

Grey—Colors on Mixtures Worcester, Mass.

French System. Bradford System.

B. F. BOYER CO.,

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

WORSTED YARNS

RICHARD CAMPION.

SELLING AGENT FOR

Bristol Worsted Mills,
Highland Worsted Mills.

300 Chestnut Street,
PHILADELPHIA, PA.

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Worsted AND Woolen Yarns

WALTER McCOOK

BELL TELEPHONE LOMBARD 3790

576 Bourse
Philadelphia

MILLER MANUFACTURING COMPANY

Manufacturers of

SOAPS for Textile Use, SIZINGS, OILS, Etc.

Write us for Prices.

668 EDDY STREET, PROVIDENCE, R. I.

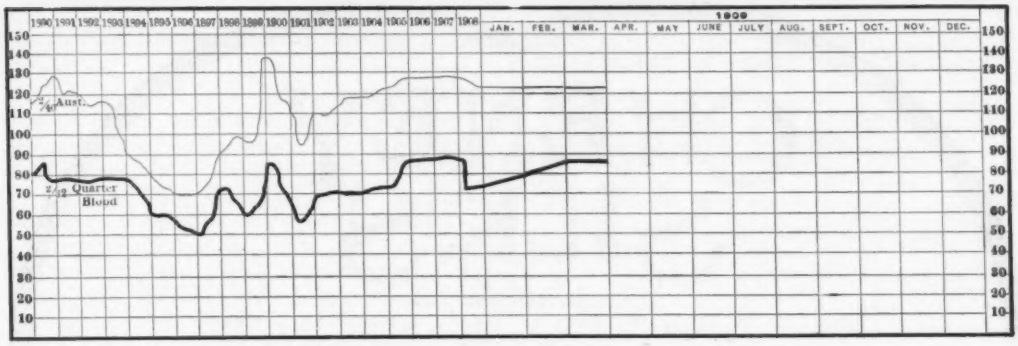


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

The Worsted Yarn Market.

There have been practically no changes made in the price of worsted since our last report. Both Bradford and French spinners report that they are very busy with the balance of trade in favor of the Bradford mills, which are working to their fullest capacity in the effort to deliver yarns on contracts that were placed last fall and also to fill orders which are coming in from day to day. The French spinners, however, report having also taken a large amount of business and have enough orders on hand to keep them busy for some time to come. There is no indication of a break in prices. Contracts for the coming season are being placed with prices very firm and prospects of further advances. Spinners have withdrawn some lines. The raw stock on hand has been used up and the spinners are going into the market to buy wool to cover their sales which means, in many cases, that they do not know what they will have to face. Prices still have an upward tendency and there is no doubt that the weaver will have to pay more for his yarn when he again comes into the market. Manufacturers are complaining that they cannot get a full supply of yarn to fill their wants from any one mill and that it is necessary for them to place orders with several spinners in order to get quick deliveries.

The men's wear trade is exceedingly active and calling mostly for 2/36s up to 2/40s, and from single 19s to single 36s for filling purposes.

It is now between seasons in the dress goods trade and it is expected that within the next two or three weeks when this business does open up there will be some good orders placed. Manufacturers are asking for prices on yarns from 2/40s to 2/60s and single 30s to 40s.

The sweater manufacturers have their samples out and are now receiving orders. This enables them to give spinning orders for yarn contracts signed early in the year. We quote as follows:

BRADFORD SPUN YARN.

2/12 to 2/16 low common	65-67½
2/26 to 2/28 common	67½-70
2/12 to 2/20 1/4 blood	77½-80
2/26 to 2/28 1/4 blood	82½
2/32 1/4 blood	82½-85
2/20 3/8 blood	87½-90
2/26 3/8 blood	90-92½
2/30 3/8 blood	92½-95
2/36 3/8 blood	95-1.00
2/40 1/2 blood	1.07½-1.10
2/40 delaine	1.12-1.15
2/50 delaine	1.20-1.25
2/40 Australian	1.22½-1.25
2/50 Australian	1.35
2/60 Australian	1.50
2/24 lustre	85
2/28 lustre	87½
2/30 and 3/32 lustre	90-92½
2/36 lustre	97½-1.00
1/24 worsted and 80s single cotton for raincloths	1.00
1/24 worsted and 120 single cotton for raincloths	1.10

FRENCH SPUN YARN.

1/20 1/4 blood	80-82½
1/20 high 1/4	85-87½
1/20 3/8 blood	92½-95
1/20 1/2 blood	97½-1.00
1/30 high 1/4 blood	94-96
1/30 3/8 blood	97½
1/30 1/2 blood	1.00-1.02½
1/40 1/2 blood	1.07½-1.10
1/50 delaine	1.17½-1.20
1/40 Australian	1.30-1.35
1/50 Australian	1.35-1.37½
1/60 Australian	1.40-1.42½
1/70 Australian	1.47½

Maine, Buxton. The Buxton Mfg. Co. has been organized with capital stock of $25,000, $9,350 paid in. It is stated the company was organized for the manufacture and sale of textile products. John Crawther of West Buxton is president, and S. G. Harmon of West Buxton is treasurer.

CHENEY SILKS

All kinds of
Spun Silk Yarns in the Gray or Dyed. Organzines, Trams or Singles in the Gray or Dyed, on Cones, Warped or in the Hank.

16 Ounces to the Pound Pure Silk—Fast Colors Warranted

Special Yarns made to order for all sorts of Silks or Silk Mixture Goods, also special silks for electrical uses, insulation purposes, etc. Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Foulards, Sashes, Satins, Pongees, Plushes, Linings, Decorative Silks, Velvets, etc.

Manufacturers' orders promptly executed.

CHENEY BROTHERS, Silk Manufacturers
South MANCHESTER, Conn.
Salesrooms
NEW YORK, 477 Broome St. PHILADELPHIA, 929 Chestnut St.
CHICAGO, Heyworth Bldg. SAN FRANCISCO, Chronicle Bldg.
BOSTON, 79 Chauncy St.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

Write for Prices and Samples.

George W. Chapin, 229-231 Church St., Philadelphia.

The Rag and Shoddy Market.

There has been no improvement in business in this market during the past month. Spinners have been using but a small quantity of stock and are buying only for immediate requirements. The tariff agitation is an additional factor contributing to the depression. The changes in the duty on rags and shoddy excite little interest, dealers stating that they will have no effect on the price of stock because the Payne duties, though slightly lower, are prohibitive, as are the Dingley rates. No pronounced improvement in the rag and shoddy business is anticipated this summer, owing to the tariff revision and the restriction of consumption on light weight goods.

SHODDIES AND EXTRACTS.

White yarn, best all wool	47-50
White knit, all wool, best fine	38-41
White knit, No. 2	32-38
Light yarn, extra fine	33-36
New pure indigo blue	30-32
Merino.	
Fine light, all wool	29-31
Medium light, all wool	17-20
Fine black, all wool	27-29
Fine dark, all wool, best grade	21-23
Medium dark, all wool, No. 2	17-19
Red knit stock, strictly all wool	22-24
Red flannel, all wool	25-27
Dark blue for hosiery, strictly all wool, No. 1	22-25
Dark blue for hosiery, not all wool, No. 2	17-20

WOOLEN RAGS.

Fine merchant tailors	10-12
Choice light colors	16-18
Browns	11-15
Blacks	10-13
Fine blues, plain	10-12
Fine dark	10-13
Medium dark	6-10
Worsteds.	
Blue	15-17
Black	19-20½
Serges.	
Black	10-13
Blue	11-13
Flannels.	
New scarlet	18-20
New blue	17-20
Cloakings	4½-6½

SOFTS AND KNIT STOCK.

Soft woolens, best	5-7
Old white flannels	12-13
Old red flannels	12-13
Old blue flannels	5-6½
Old plaids	7½-9½
White stockings	20-22
White hood stock	20-23½
Clear hoods	10-12

Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

EDWIN F. SCHOFIELD
Cotton Waste
IMPORT and EXPORT
45 S. 3rd St. Philadelphia

William B. Charles,
Amsterdam, N. Y., U. S. A.
Cotton and Wool Wastes
COTTON YARNS
Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.
Established 1860—Incorporated 1893.
THE S. BLAISDELL, JR., CO.,
COTTON, EGYPTIAN PERUVIAN
American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.
CHICOPEE, MASS.
Cotton Waste Purchased on Yearly Contract from Mills.

Testing of Yarns.
Count-Twist-Strength-Moisture-Chemical Test
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Acetic, 100 lbs	2.50-3.00
Citric, domestic	50-52
Oxalic	8-9
Sulphuric, 66°, 100 lbs.	99-1.10
Muriatic, 18°	1.15-1.75
Tartaric crystals	26½-27

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.00-2.05
Alum, lump	1.75-2.00
ground	1.85-2.00
powdered	2.90-3.25
Aqua ammonia, 26°	3¾-5¾
Ammoniac, sal., gray	
Borax, bbls.	4-8
Brimstone, crude, ton	27-51
Copperas	65-80
Cream tartar, crystals	21-25
Fuller's earth, powdered, ton	20-22
Glauber's Salt	65-80
Potash, chlorate, crystals	9-10
powdered	12-13
carbonate	6-8
Soda, bicarbonate	1.60½-1.76
Soda, caustic, domestic, 60 per cent.	1.78-1.90
Sal., American	72-86
Vitriol, blue	5½-6
Acetate of soda	4-6½
Acid, picric, best crystals	25-50
tannic, commercial	30-41
Albumen, egg	62-70
blood	25-33
Alizarine, red	19
Aniline, oil	11-12½
salt crystals	14
Bichromate of potash, American	9-11
Bichromate of soda	8½-10½
Bisulphite of soda	3-4
Cutch, mat	5-8
Dextrine, imported potato	6-8
Divi-divi, ton	40-45

Georgia, Beverly. The Pearl Cotton Mills are offered for sale by order of E. B. Heard, Middletown, Georgia, trustee in bankruptcy.

Georgia, Chipley. Prominent business men of this place are interested in a project for establishing a cotton mill here.

Georgia, Claxton. W. F. Freeman is interested in a proposition to organize a cotton mill.

Georgia, Monticello. On March 16 a mass meeting of citizens was held for the purpose of organizing a Chamber of Commerce and a cotton mill company. No definite results have been accomplished as yet.

*Georgia, Ocilla. Great interest is shown in the proposition to build a cotton mill. William Henderson has been made chairman of the committee to secure subscriptions.

Georgia, Raymond. Ashby Purse is reported to be interested in the organization of a company to build a cotton mill.

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are not adapted to work where fluid oils seem indispensible. We have devoted years of effort in preparing grades of Non-Fluid Oil for each and every particular kind of Textile Mill lubrication. The special grades of Non-Fluid Oil which effect the very best lubrication for the light, fast parts of textile machinery are not more viscuous than fluid oils but they adhere more tenaciously to bearings and largely eliminate spattering and wasting.

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RESERVE AS A CONFLAGRATION SURPLUS -	800,000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES - -	9,882,821
SURPLUS AS REGARDS POLICY-HOLDERS -	13.682,821
Losses Paid Since Organization Over - - -	$115,000,000

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AREUNAH M. BURTIS, Secretary.
CHARLES L. TYNER, Secretary.
HENRY J. FERRIS, Asst. Secretary.

FACTS AND GOSSIP.

*Alabama, Demopolis. The Elmore Mfg. Co., previously reported as taking over the Bessie Minge Mfg. Co.'s plant, has been organized with capital stock of $50,000 by B. F. Elmore, J. W. Sanders, W. C. Harrison, Jr., and Bessie C. Minge.

*Alabama, Glencoe. The Lagarde-Glencoe Industrial Club has secured 20 acres of land suitable for manufacturing purposes, and will secure subscriptions to the amount of $25,000 toward the erection of a new cotton mill. They would like to communicate with parties who would invest in the enterprise and take hold and operate the mill.

Alabama, Montgomery. The People's Cotton Factory was sold at public auction for $104,000 to M. L. Greil and associates. Their plans are not known.

*Georgia, Chipley. Nothing definite has been accomplished by the promoters of the proposed new cotton mill. They advise, however, that it is probable the project will be carried through.

*California, Los Angeles. Rumors state that contract will soon be let by the Los Angeles Cotton Mill Co. for a plant to consist of a main structure, 150 by 900 ft., and other buildings. D. Howarth and Albert Beach are the promoters.

Connecticut, Glenville. As a result of dissatisfaction among the employes of the weaving department of the American Felt Co.'s local mill, this department has been shut down. For a number of months the company has gradually reduced the amount of work done in this department and it is stated that the line of woven goods will be discontinued for the present.

Connecticut, Jewett City. The capital stock of the Aspinook Co. has been increased from $500,000 to $750,000.

Connecticut, New London. It is reported that a new York silk concern is negotiating with C. D. Boss & Son for the Boss cracker factory on Water St., with a view to establishing a silk manufacturing plant there.

Connecticut, Vernon. The property of the Ravine Mills Co. is offered for sale by the First National Bank of Hartford.

Delaware, Wilmington. It is reported that the Delaware Cotton Mills will not be started up again. All the cotton, woolen and worsted yarns which the company had on hand were purchased by Crawshaw Wolfenden, Bodine and York Sts., Philadelphia. who has also asked for an option on the mill equipment.

Georgia, Albany. It is reported that John A. Betjeman, W. W. Pace and Edwin Sterns of Albany, Georgia, contemplate erecting a cotton mill in Albany at an early date.

Georgia, Bainbridge. A committee of local business men has been appointed to consider the advisability of organizing a cotton mill company.

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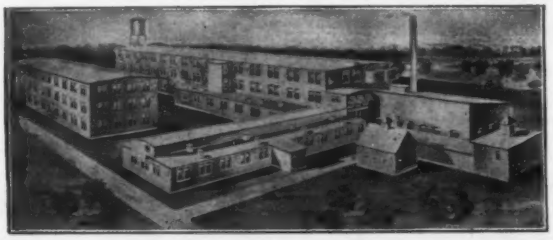

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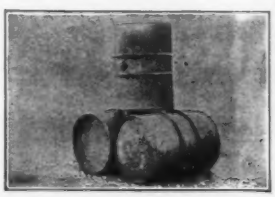

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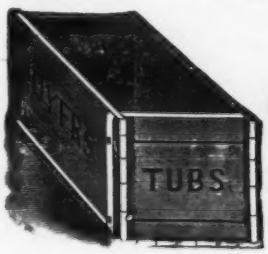

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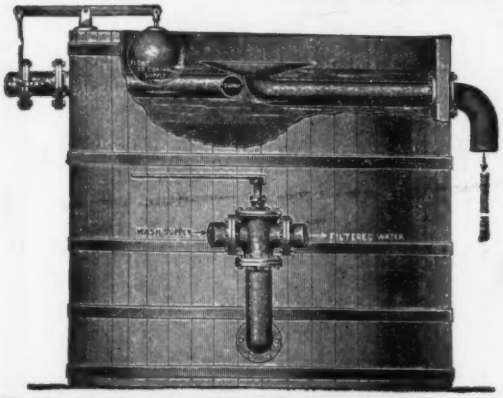

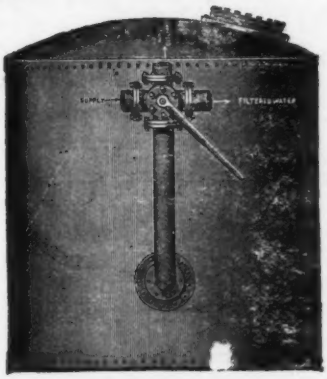

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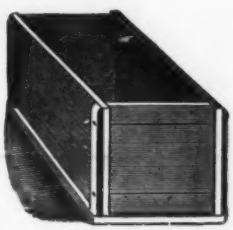

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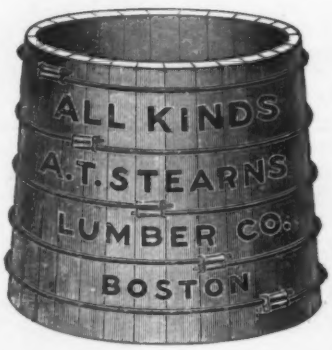

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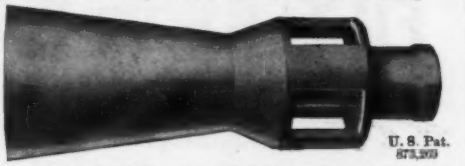

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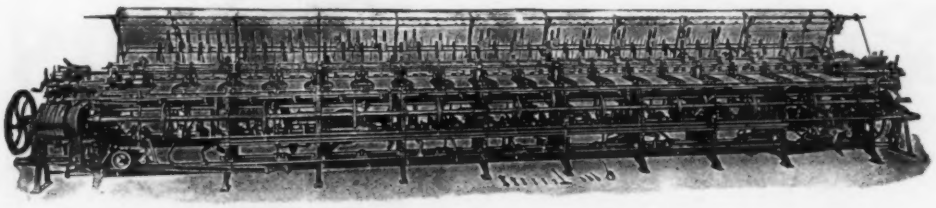

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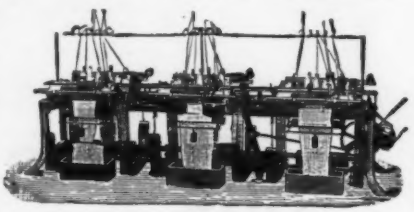
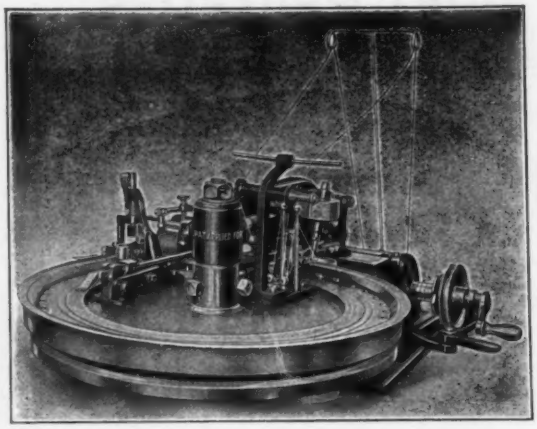
GROSSER Flat Knitting Machines
For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



CIRCULAR FRENCH FRAMES
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

RASHEL MACHINES [Double Rip Warp Knitting Machines.]
For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool cotton.



The LOOPER THAT LOOPS!
Two thread lock stitch machine with reliable trimmer and raveller producing *indistructible, flat elastic* seam.
No Hosiery or Underwear plant up to date without this machine.

DIAMOND OVERSEAMERS
for all classes of selvege goods, Full Fashioned Hosiery, Underwear, etc.

FINISHING MACHINES for Knit Goods of all styles.

WINDERS for finest yarns.

Information, Samples and Specifications at Your Disposition

FRIEDBERGER-AARON MFG. CO.

LEADING MANUFACTURERS

Braids and Edgings

FOR TRIMMING

Ladies' Ribbed Underwear

OUR MOTTO: Correct Goods
Right Prices
Prompt Deliveries

Mills: Germantown, Philadelphia

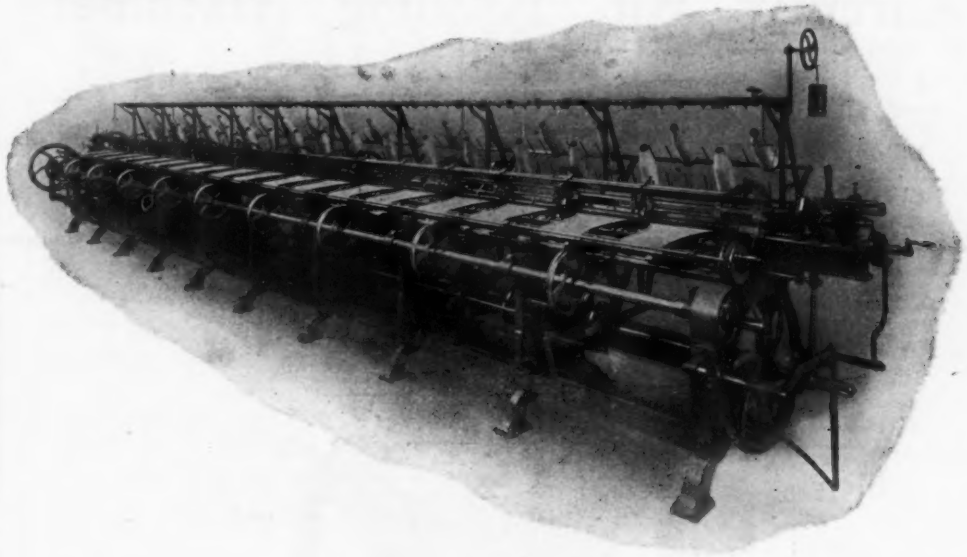
Post Office Address,
Logan Station, Philadelphia

Full Fashioned Hosiery Machines

BUILT BY

SCHUBERT & SALZER

Largest Manufacturers of all classes of Hosiery Machines.



Best constructed and most productive machines in the market for the manufacture of Full-Fashioned Hosiery in Cotton, Lisle or Silk.

Split-Sole, Plating, 2, 3 or 4 Color Striping
Single or Double Lace Attachment.

Also: New Jacquard Lace Hosiery Machines.
Ribframes Winders

REFERENCES:—All the leading manufacturers of full-fashioned hosiery in this country.

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OTTO WALTHER, 507 Bourse, Philadelphia

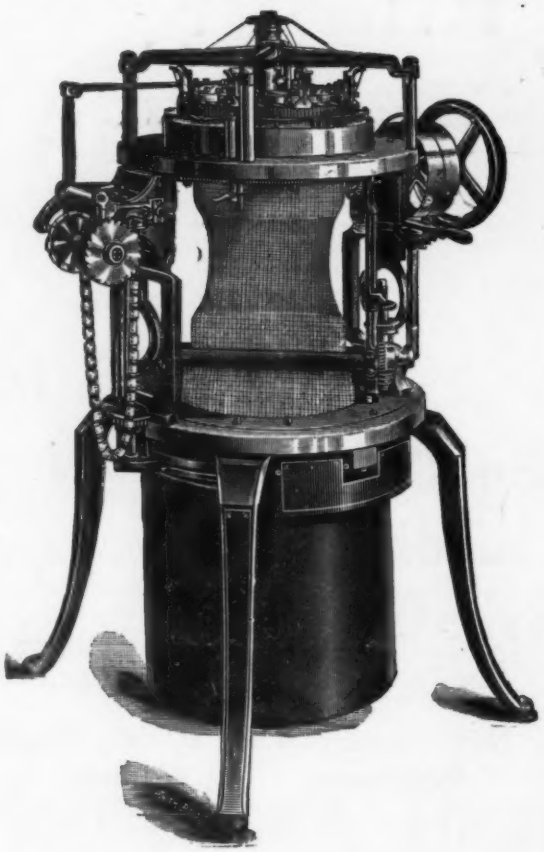
Wildman Manufacturing Co.

Norristown, Penn., U. S. A.

Manufacturers of

Circular Rib Knitting Machinery

Automatic
Stop
Motions



Electric
Cloth
Cutters

AUTOMATIC AND PLAIN

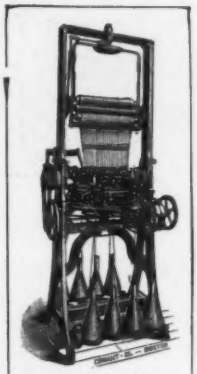
For all classes of Ribbed Hosiery, Underwear, Combination Suits, Sweaters, Etc.

CHARLES COOPER

BENNINGTON, VERMONT.

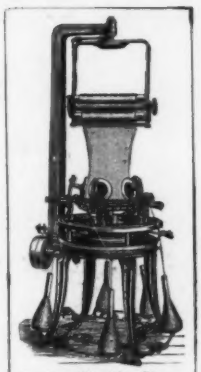
MANUFACTURER OF

Knitting Machinery



Circular Spring Needle Rib Top Machine.

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



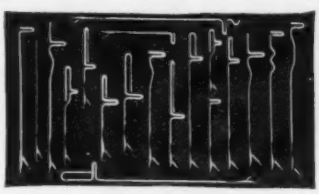
Spring Needle Circular Plain Body Machine.

Spring Needle Cylinder Rib-Top Machines

For making Cuffs, Drawer Bottoms and Shirt Borders.

Spring Needles.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.



Latch Needles.

COLLARETTE ATTACHMENT.

AMERICAN REPRESENTATIVE.

G. H. ROGERS,
509 Clinton St., Hudson, N. Y.

EUROPEAN REPRESENTATIVE.

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Edouard Dubied & Co.,

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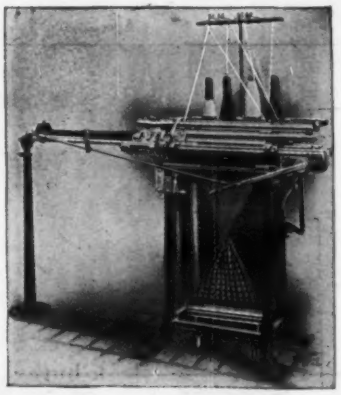
Leading Manufacturers of

Flat Knitting Machines

For Hand and Power
Full Automatic, Etc.



Best constructed and most productive machines on the market for manufacturing sweaters, gloves, sporting goods, etc. *For particulars apply to*

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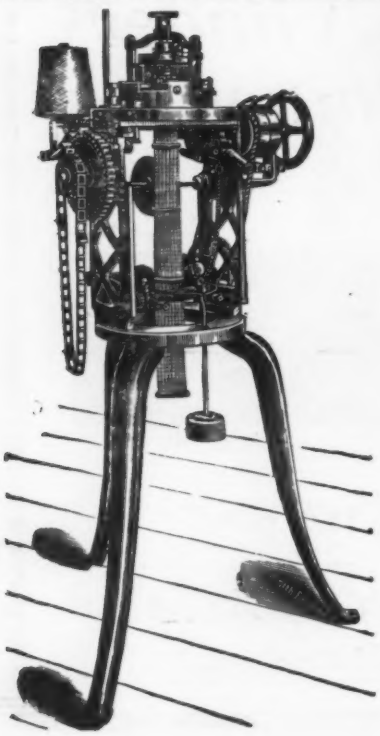
350 Broadway Room 706, NEW YORK, N. Y.



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213-215 Race Street, Philadelphia, Pa.

BUILDERS OF

Knitting Machinery

For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

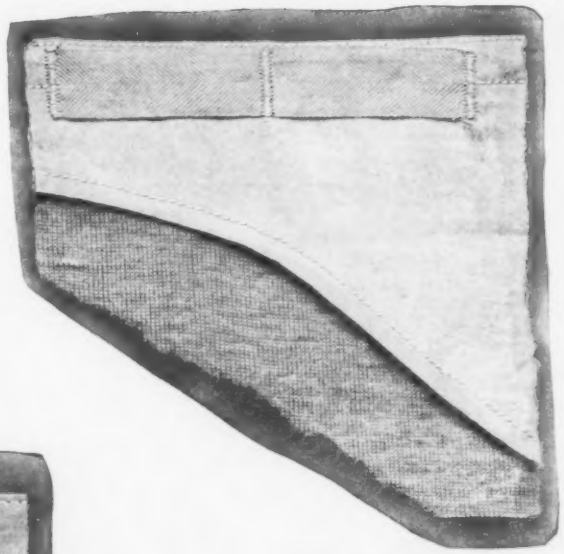
The cut shows our Improved Automatic Ribber with Welt and Slack Course for Half Hose, Tops and Ribbed Legs.

SINGER MACHINES FOR KNIT GOODS MANUFACTURERS

Singer Machine, No. 79-1

For Tacking Drawers Straps

This Machine is adjustable for making the bar tack from 1/2 to 7/8 of an inch long and 1/16 to 3/16 of an inch wide, the last two stitches fastening the thread and the automatic cutters trimming it close to the tack, both top and bottom.



Singer Machine, No. 52-30

Is a three-needle, three-hook, chain stitch machine, fitted with top and bottom folders for sewing (in one operation) straight bands on ladies' and children's pantalettes and drawers. It has an adjustable power ruffling mechanism for fulling in the body of the goods while stitching. This machine is being used by a large number of manufacturers who are obtaining an average production of about 100 dozen a day.

Send to-day for FREE samples of work to

Singer Sewing Machine Company,

Room 3613 Singer Building, New York

SPARTAN LEATHER BELTING

Dominant in the Field

NO OTHER BELTING offers the buyer what **Spartan Belting** does, because no other belting will give the same service. We say this unreservedly, and regardless of the cost of the belt, because we know what our belting will do. **Spartan** belting is dominant in the field of hard service and it deserves this honor.

The manufacturer, miner or mill owner, who has belt troubles should look into our proposition at once. So far we have had no failures with the **Spartan,** however rigid the test.

IMMUNE from COMMON FAULTS

Spartan Leather Belting is more pliable than any other, grips the pulley better, works with less tension, hence is more durable. No matter how much heat may be generated by a heavy load, it will not affect the **Spartan.**

In addition, **Spartan Belting** is ***steam proof*** and will resist the action of ***lubricating oil.*** It will also resist the action of ***hot water, coal gas and acid fumes.*** Where is there another belt which will stand up under service like this?

Part of our guarantee says that, "It will when used under the same conditions, ***outwear any other belting material,*** saving loss of time and cost of replacement."

Better send for particulars of our Special Offer, which allows you to test our Belt for 60 days. Write to-day.

GRATON & KNIGHT MFG. CO., Worcester, Mass.

"Nothing so Good as a Good Finish"

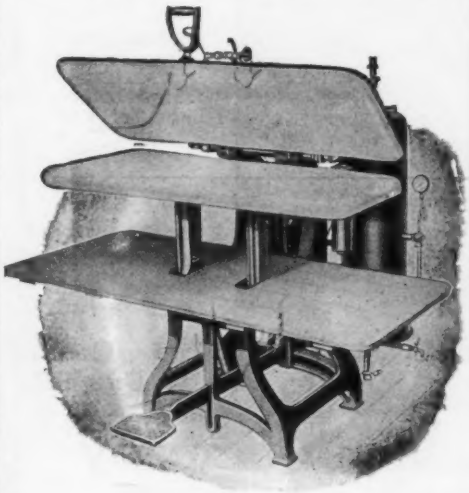
We are speaking of the finish on Knit Goods as produced by the

Hoffman Press

Presses a full garment in one operation, leaving it smooth and of fine finish.

Will not break buttons.

Floor space required—4 feet square.



The "Hoff-Man" F.

Write us for prices, particulars and illustrated catalogue

United States Hoffman Company

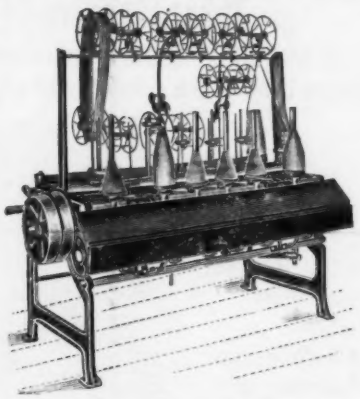
229 Temple Street

SYRACUSE, N. Y.

A. W. ALLEN

2427 Mascher St., Phila.

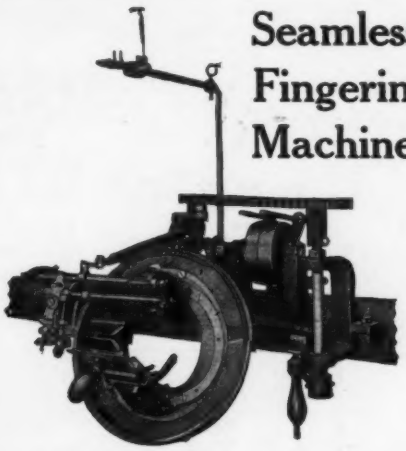
WINDERS



6 SPINDLES UP

The best winder on the market. If you are not using one or more try one.

Seamless Fingering Machine



Knit Glove Manufacturers

If you want to be up to date, ask us for particulars of this machine. Indorsed by leading manufacturers.

James Leckie & Son,

821 N 13th Street, Phila, Pa.

Higher Speed

To Reduce Cost of Production by Increasing Output of Operators

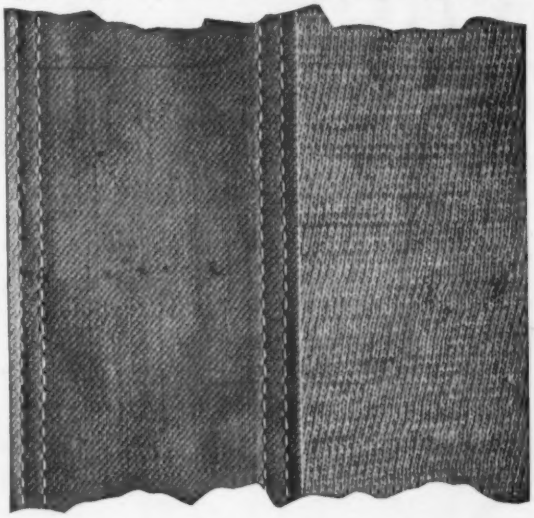
Higher Efficiency

USE

Multiple Needle Machines

For all Multiple Needle Operations, whether for Ornament or for Service, where it is desired to have a plurality of parallel rows of stitching, needles spaced as desired

Yielding Bottom Presser Foot to be used where different thicknesses of Fabric are being Stitched Simultaneously



Special Fittings and Attachments now ready for Numerous Manifold Operations

Greater Simplicity

Style 16100 A-4 Needles-8-80-8 Gauge
Stitching Front Facings to Shirts
One Operation

Greater Durability

Union Special Machine Company

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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Hosiery Boards.

James Taylor, 121 Arch Street, Phila., Pa.

DEALER IN NEW AND SECOND HAND

Knitting Machinery

Wishes to call the attention of the manufacturers of Ribbed Hosiery and Underwear to the new patented

Double Acting Attachments for Ribbers

sold on its merits only. Here are a few of its MERITS:

Double Production; as it is double acting; fills your orders in half the time or more orders in the same time; you produce in six months what it now takes you one year to do; does the work of two machines.

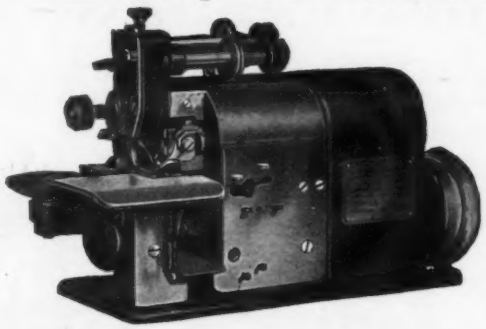
Costs Less; requires just half the space, that means less rent or investment; weigh or measure the product, then compare with present methods; makes a good RIBBER better. New parts all built on the interchangeable PLAN. We are changing over either WILDMAN, BRINTON or SCOTT & WILLIAMS MAKES of machines.

Call and see machines on exhibition at 121 Arch St., Phila.

The Merrow

High Speed Overseaming, Overedging and Scallop Stitch Machines are

FAST
DURABLE
Light Running



OUR STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

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EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

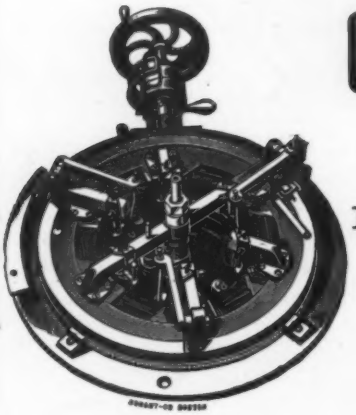
ALLENTOWN, PENNA.

BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

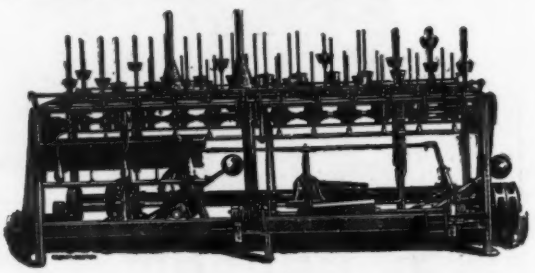


CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



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ABEL WINDERS, SEAMERS and LOOPERS.

LEIGHTON MACHINE CO., - Manchester, N. H.

The Invincible

Full Automatic.

"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

E. JENCKES MFG. CO.

Pawtucket, R. I.

PHILADELPHIA OFFICE,
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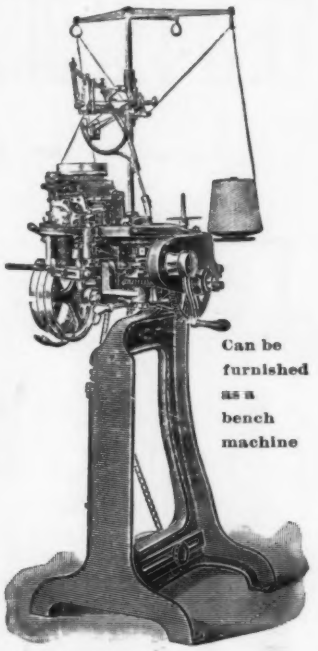
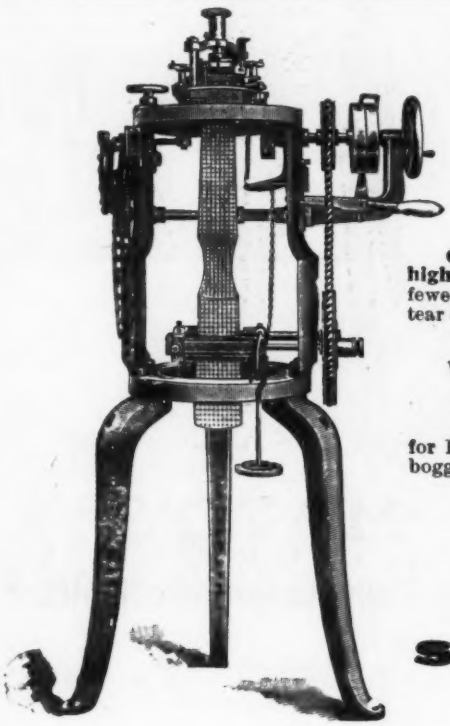


Can be furnished as a bench machine



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

STRIPING AND DESIGNING MACHINES

for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

STAFFORD & HOLT,

LITTLE FALLS, N. Y.

NYE & TREDICK CO.

718-720 Cherry Street,
PHILADELPHIA, PA.

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
UNEXCELLED

NYE & TREDICK CO.

If You Want

Largest Production For Least Money

Write

Geo. D. Mayo Machine Co.,

Laconia, N. H.

Latest
Simplest
Best

MAYO'S

New Full Automatic Knitter

PHILADELPHIA OFFICE,
KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

Established 1870. — Incorporated 1890.

CRANE M'F'G. CO.

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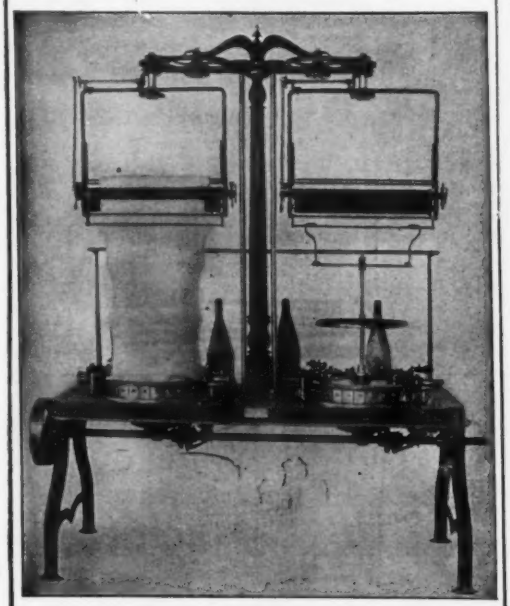
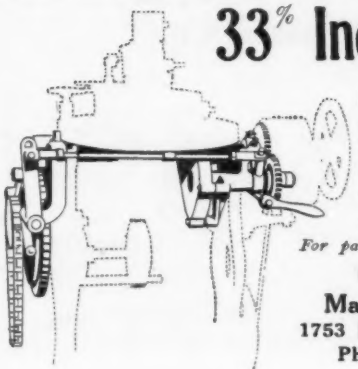
Manufacturers of

Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



Spring Needle Underwear Machine.

33% Increase



in production of Circular Rib Knitting Machines is obtained with our attachments.

For particulars address

Climax Machine Co.
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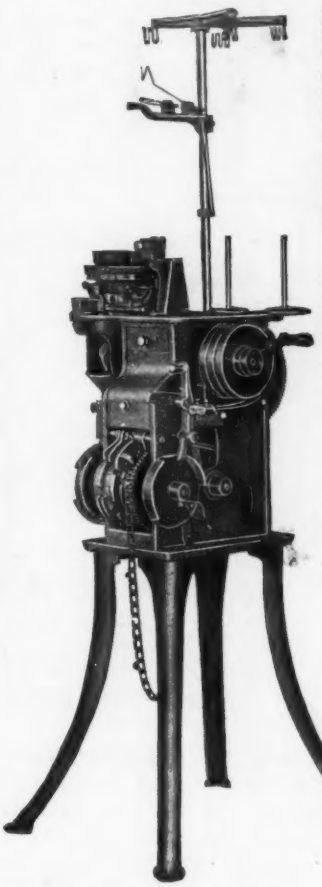
"THE BANNER"

Hemphill's Latest

A FULL AUTOMATIC MACHINE

Specially adapted to



Manufacture Hose with Linen or Mercerized heel or toe.
Also for

Plaited Goods
and
String Work

High Splice
and
Double Sole

Largest Production

More Yarn Changes

Highest Speed

Simplest

Least Repairs

Produces a Superior Quality of Work.

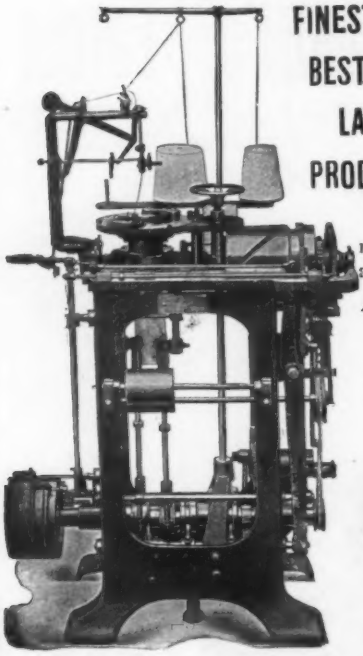
MANUFACTURED BY THE

Hemphill Mfg. Co.

131 Clay Street, PAWTUCKET, R. I.

"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

Also

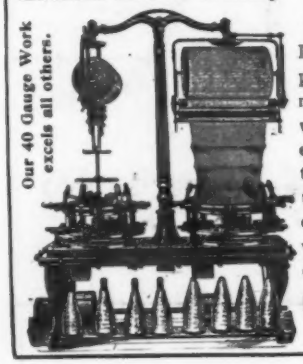
Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

1028 Susquehanna Avenue. PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



Our 40 Gauge Work excels all others.

40 years' experience

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

Robt. W. Gormly & Co.
Troy, N. Y.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Mayo Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

because we make a superior grade of needles.

Philadelphia Office, Knickerbocker Bldg.

STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

Plain Goods
Plaited Work
Three Color Stripes
Tipped Heel and Toe
White Foot
Changed Heel and Toe
Garter Top
Loopers Slack Course

Most Stockings—Best Fabrics—Longest Life

Standard Machine Company

OFFICE AND SHOW ROOMS

330-340 North 12th St., Philadelphia

We Are the Oldest Manufacturers

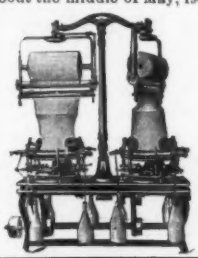
IN THE WESTERN HEMISPHERE

Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

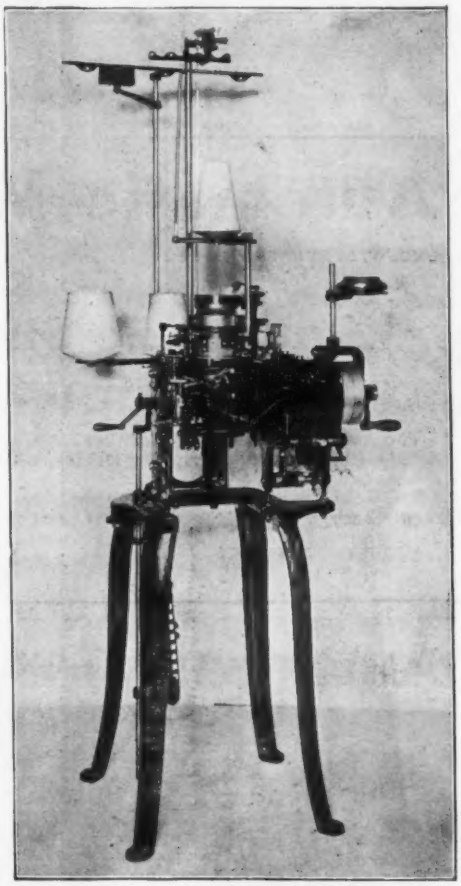
Full Automatic Knitters

For Ladies', Half Hose and Footing, also for

Ladies' Split Sole and Lace Hose

Full Fashioned Legger and Heeler for Full Fashioned Hose.

Measures length like a Rib Frame.

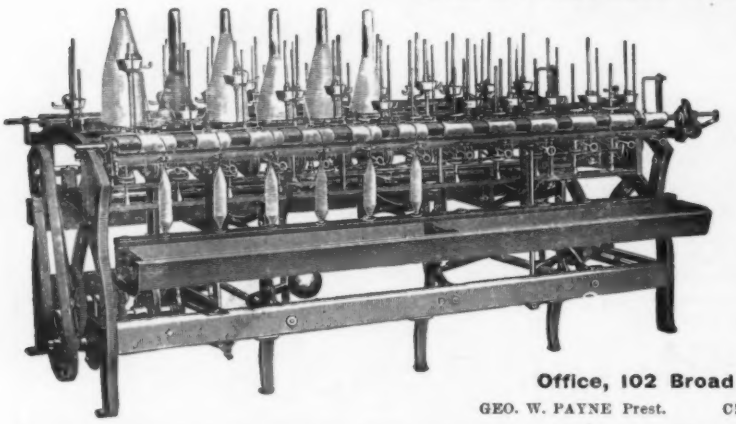


Paxton & O'Neill

537-41 North Third Street, Philadelphia.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.,

[Est. 1865. Inc. 1903.]

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.

Automatic Machine Works

GEO. W. STEVENSON, Inventor and Proprietor 315-315½ Elm Street, Reading, Pa.

Builders of

Automatic Singeing Machine and The Cold Hosiery Press.

The Automatic Singeing Machine is the only machine on the market equipped with a **Patent Single Plate Positive Stripping Device,** which saves gas, hose and labor. Built in two sizes double and single feed.

The Cold Hosiery Press is very simple to operate, is less expensive, no complicated parts and requires very little power. With this press the life of the yarn is retained and the finish of the hosiery after coming out of the press cannot be equalled by any other press hot or cold. The press is built in two sizes.

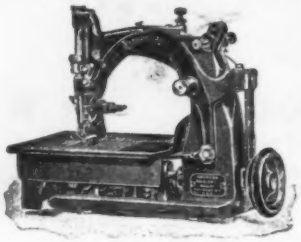
For further information address as above

American Raveller Company

PHILMONT, N. Y.

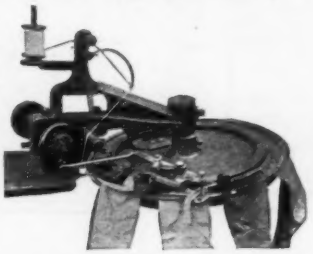
MANUFACTURERS AND PATENTEES OF

High Speed, Elastic Stitch Sewing and Trimming Machines



Also ravelling machines for making knit underwear and hosiery full fashioned.

2 line and twin needle machines for fancy stitching.



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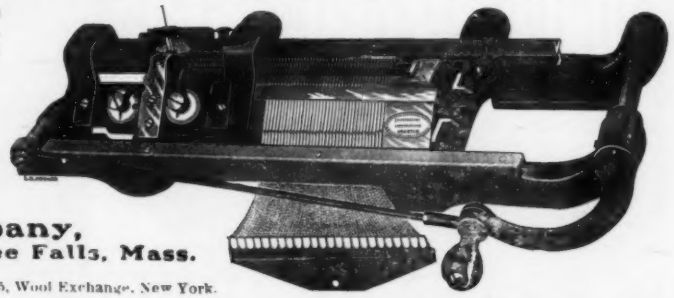
LEADER OF KNITTERS

Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

Circular Machines,
Rib Top and
***Seaming* Machines.**



Lamb Knitting Machine Company,

P. O. Box. 5888, **Chicopee Falls, Mass.**

J. E. WOODHEAD, 140 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

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were the first machine builders in Chemnitz, Germany, to construct

Full Fashioned Hosiery Machines

upon the Cotton principle and which since their introduction have never been excelled by any other machine builder; be it in construction or productiveness. Built in all gauges and for any material, cotton, wool, lisle or silk.

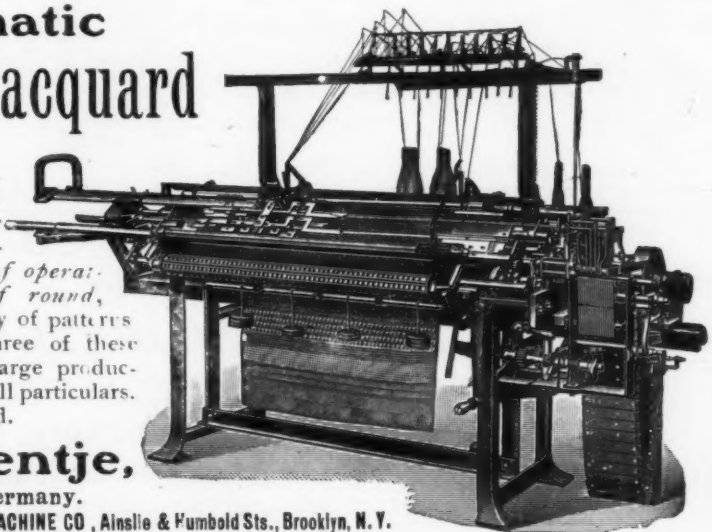
Sole American Representative,

E. O. SPINDLER, 350 Broadway, New York, N. Y.

Full Automatic
Noppen & Jacquard

for high-grade sweaters, jerseys, etc. Latest improvements

Recognized as the best in the market. With Jacquard attachment allowing *change of operating mechanism every half round*, therefore unrivaled in variety of patterns One operator attends to three of these machines. High speed. Large production. Ask for samples and full particulars. State gauge and size you need.



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Representatives, **AINSLIE KNITTING MACHINE CO**, Ainslie & Humbold Sts., Brooklyn, N. Y.

Where all kinds of our hand and automatic machines can be seen working.

HEPWORTH & CO.'S

Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

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PHILADELPHIA.

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MAKER OF

For Ladies', Gents' and Children's Goods.

Latest Styles.

Best Workmanship.

Drying Form Boards

OF EVERY VARIETY.

Reels for Cotton

WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

LINDSAY, HYDE & CO.,

2124 to 2130 East York St., PHILADELPHIA, PA.

CHARLES H. SCHNITZLER,

Patentee and Sole Manufacturer of

THE PNEUMATIC CONVEYOR

For the handling of wool and cotton stock rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement.

SATISFACTION GUARANTEED Patented Oct 13, 1869

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Patent Loopers

Single, double and two thread stitch.

with the Patent Raised or Straight Points.

Beattie Manufacuring Co.,

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The CRAWFORD

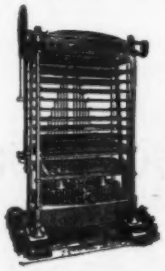

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PLATE PRESS

For Knit or Woolen Goods.

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS.

SPENCE & RIDEOUT,

Successors to

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Established 1868

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BRAIDING MACHINERY

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

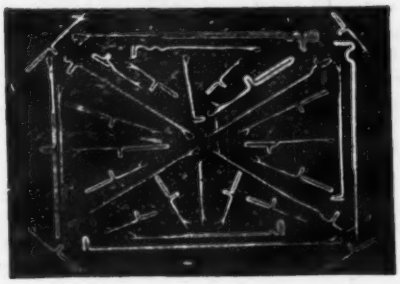
SOLID SASH AND CURTAIN CORDS,

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS.

TRY OUR "SUPERIOR" OR SUNKEN RIVET-HEAD NEEDLES

They will save you money.



Dodge Needle Co., Manchester, N. H.

WM. COREY CO,

Manufacturers of Knitting Machine

Latch Needles

MANCHESTER, N. H.

EXCELSIOR NEEDLES.

The best Hosiery Needles in the market.

Manufactured by

WARDWELL NEEDLE CO., Lakeport, N. H.

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MANUFACTURERS OF

Spring Knitting Needles

AND BURR BLADES OF ALL KINDS.

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You Save Enough Insurance to Pay for the Equipment.

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

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Standard Latch Needles

MANUFACTURED BY

EXCELSIOR NEEDLE CO.,

TORRINGTON, CONN.

The Largest Manufacturers of Machine Needles in the World.

STANDARD

TRADE MARK.

Longer Wear. Better Work.

Less Mending. Fewer Seconds.

Have you tried our

Patent Milled Rivet?

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Manufacturers of all kinds of

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KEYSTONE LATCH NEEDLE CO.

JOHN C. EGLY, MGR.

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Patent and Regular Latch Needles

Needles for all makes of Knitters and Ribbers.
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.

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TEXTILE MACHINE WORKS

THUN & JANSSEN, READING, PA.

Manfrs of BRAIDING MACHINES

for making Dress Trimming Braids, Cotton Tapes, Underwear Braids, Shoe Laces, Spindle Banding, etc. Winders, Doublers. Measuring Machines, Reelers, Singeing and Finishing Machinery. Special Machinery.

The Continental Latch Needle Company.

Manufacturers of the BEST GERMAN NEEDLE on the Market.

RIVETS GUARANTEED. Samples on application. SPRING NEEDLES A SPECIALTY.

120-122 LIBERTY STREET, - - - - - - - - - NEW YORK.

McCormick Turbines

both Cylinder and Wicket Gate, giving **ENORMOUS** power are used in hundreds of textile mills throughout the world.

We make a specialty of designing turbines to meet the requirements of the public.

We build Francis turbines in spiral flumes to operate under high heads.

Boston Office, 176 Federal Street.

S. MORGAN SMITH COMPANY, York, Pa., U.S.A.

Geo. W. Gerry & Son, ATHOL, MASS.

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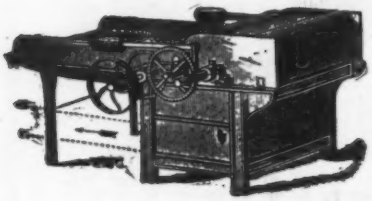
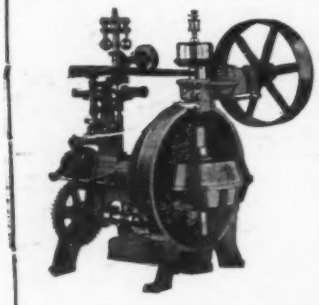


Lumpers,

Wool and Waste Dusters,
Rag Dusters, Nappers.

Improved Cloth Measuring Machines.

Lumper and Duster Cylinders Refilled and Repaired.



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OUR compensating type more fully meets the needs of Textile Mills than any other. This is due to its being the only successful quick acting, mechanical, governor and its perfect control of large as well as small changes. 1500 of this type in use in mills and electric power plants.

Woodward Governor Co., Rockford, Ill.

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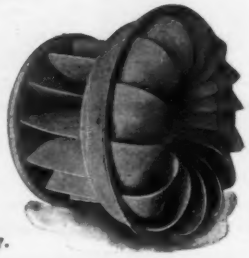
CYLINDER or BALANCE GATE CASING

Highest Efficiency, Greater Power,
Easy and Quick Regulation,
Steady Motion, Durability.



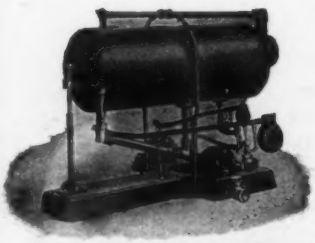
RODNEY HUNT MACHINE CO.

ORANGE, MASS.

BRANCH OFFICE: 70 Kilby St., Boston, Mass.

See our Woolen Machinery advertisement on page 47.

"DETROIT" AUTOMATIC RETURN TRAP SYSTEM



"DETROIT" RETURN TRAP
(Patented.)

Will return water of condensation from any source directly back into boilers without the use of a pump and **hotter** than a pump will lift.

See any economy there ?
Get our proposition.

Any steam heating system or dryer
Minus Condensation, Equals **Highest Temperatures.**
Steam and Condensation
Divided by a "Detroit" Steam Trap Equals **Efficiency.**
Hot water of Condensation
Plus "Detroit" Return Trap System, Equals **Economy.**

AMERICAN BLOWER CO., DETROIT, MICH.

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E. W. Murphey & Co
HUDSON, N. Y.
Established 1831.

Sewing Machine Belting, Press Boards, Belt Hooks, Lace Leather, Leather Belting, Latch Needles, Oilers of every description, Mill Baskets and Brooms, Mill Banding, Rings and Springs, Packings of all kinds, Fire Pails, Shears and Trimmers, Cloth Knives, Etc.

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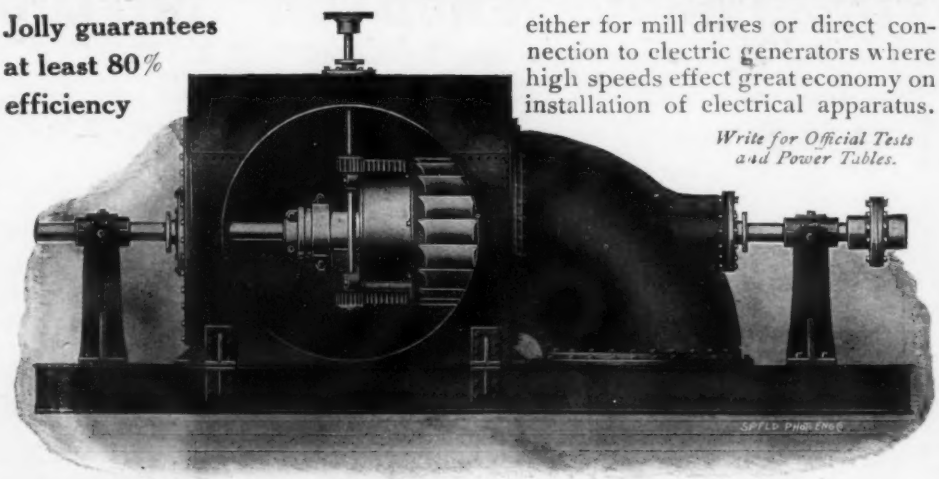
Water Wheels

made to meet all requirements

Jolly guarantees at least 80% efficiency

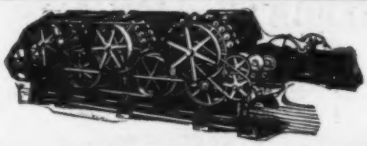
either for mill drives or direct connection to electric generators where high speeds effect great economy on installation of electrical apparatus.

Write for Official Tests and Power Tables.



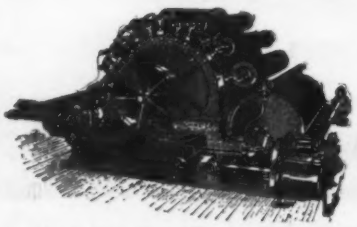
J. & W. Jolly, Inc. 500 East St., Holyoke, Mass.
Manufacturers of the Original "McCormick Holyoke Turbine." Both Vertical and Horizontal.

APR 16 1909

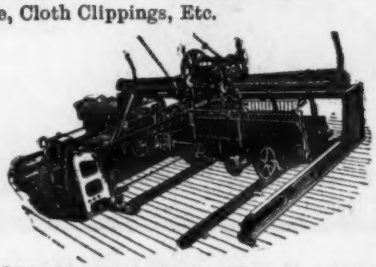


CARNETT MACHINES AND PICKERS

For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



WOOLEN MILL MACHINERY



Including Rag, Wool and Burr Pickers, Wool, Worsted and Shoddy Cards, Mules, Yarn Twisters, Warpers, Dressers, Spoolers, Etc.

Complete Equipment for Manufacturing Cotton Batting for All Purposes.

Special Carding and Spinning Machinery for manufacturing Yarn from such low grade stock as Mill Sweepings, Linters, Etc.

We reclothe or furnish new Metallic Toothed Cylinders and Rolls and relagg or furnish new Cylinders for any make of Rag Picker.

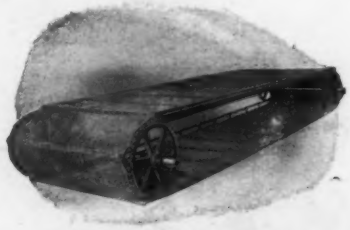
SMITH & FURBUSH MACHINE CO., Hancock and Somerset Streets, **PHILADELPHIA, PA., U. S. A.**

FIRE PROOF "PROCTOR" DRYERS

Formerly the "CYCLONE"

Built entirely of STEEL; no woodwork. All trouble with aprons overcome by the Inter-Locking Chain Conveyor. "It needs no adjustment."

"Proctor" Dryer, Feed End.



The Inter-Locking Chain Conveyor Separate From Dryer.

Dryers for Cotton Stock, Wool, Rags, Cloth, Hosiery, Yarn, Underwear, Etc.

Complete Carbonizing Outfits. Iron Bowl Yarn Scouring Machines.
Ventilating Fans.

THE PHILADELPHIA TEXTILE MACHINERY CO., Hancock and Somerset Streets PHILADELPHIA, PA., U. S. A.

CELL DRIER MACHINE CO.

TAUNTON, MASS.

BOSTON OFFICE, 147 MILK STREET.

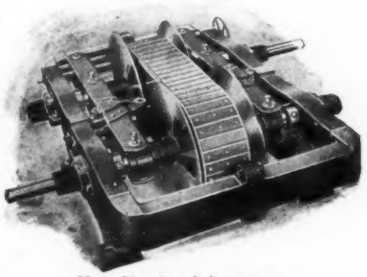
THE new type **Horizontal Cell Drier** will be on exhibition at Mechanic's Hall, Boston, Mass., April 26 to May 1. You are cordially invited to inspect this machine.

Write for complimentary tickets to

Cell Drier Machine Co., Taunton, Mass.

THE MILL EQUIPPED WITH

"Reeves" Variable Speed Transmission



for regulating the speed of Slashers, Singers, Drying Cylinders, CELL DRIERS, Printing and Dyeing Machines, Steam Agers, Tenter Frames, Dampeners, etc., produces the best and most reliable results. *Scrap* your cones.

Enquire of those who are using them.

Reeves Pulley Company,
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New England Agents,
CELL DRIER MACHINE COMPANY,
Taunton and 147 Milk St., Boston, Mass.

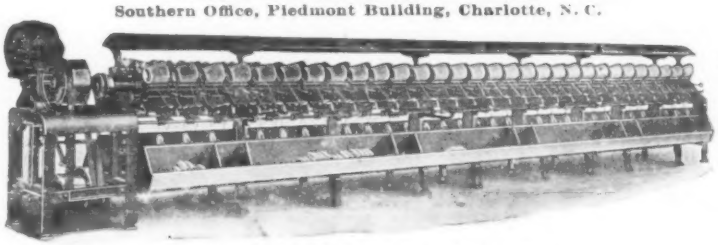
New York Representatives,
PATTERSON, GOTTFRIED & HUNTER,
146-150 Centre Street.

Foster Machine Company

WESTFIELD, MASS.

Southern Office, Piedmont Building, Charlotte, N. C.

Cone Winding.
Tube Winding.
Skein Winding.
Quill Winding.
Doubling.



Both "Open" and "Close" Winding Machines for every branch of textile manufacturing.

New Model No. 12 Cone and Tube Winder.

More and Better Carding

"New Century" cards (Rae's System) do more and better carding on two card set than can be done on the old three card set style.

This is owing to the addition of several workers which greatly facilitate production and raise the quality of the carding done.

They use less space, less power, less card clothing and make less waste. Better let us tell you more about them.

The Lombard Machine Co.,
Worcester, Mass.

THE BELL SYSTEM

Manufactured by

THE CRISCOM-SPENCER CO.

90 West St., New York, N. Y.

NO SPRAY

NO WETTING

The case opens wide for easy access to evaporating surfaces.

The current of moistened air from the Humidifier reaches *all* parts of the room. Let us call, explain and quote.

Walworth Manufacturing Co.,

HIGH PRESSURE

VALVES AND FITTINGS

"Walmanco" Pipe Flanges
"Never Stick" Blow-off Cocks, Mill Supplies.

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